Owners Guide
and
Installation Instructions

Solar Premier Loline
Electric Boost Water Heater

Install a Rheem

WARNING: Plumber – Be Aware

Use copper pipe ONLY. Plastic pipe MUST NOT be used.
It is a requirement of a solar water heater installation that all pipe work be in copper and not plastic, due to the effects of high water temperatures.

This water heater must be installed and serviced by an authorised person.
Please leave this guide with the householder.

Notice to Victorian Customers from the Victorian Plumbing Industry Commission.

This water heater must be installed by a licensed person as required by the Victorian Building Act 1993.

Only a licensed person will give you a Compliance Certificate, showing that the work complies with all the relevant standards. Only a licensed person will have insurance protecting their workmanship for 6 years. Make sure you use a licensed person to install this water heater and ask for your Compliance Certificate.

WARNING: Plumber – Be Aware

- The solar hot and solar cold pipes between the solar storage tank and the solar collectors **MUST BE** of copper and fully insulated with closed cell polymer insulation or similar (minimum thickness 13 mm). Thicker insulation may be required to comply with the requirements of AS/NZS 3500.4. The insulation must be weatherproof and UV resistant if exposed. All compression fittings must use brass or copper olives.

- Plastic pipe **MUST NOT** be used, as it will not withstand the temperature of the closed circuit fluid generated by the solar collectors under stagnation conditions. The solar collectors can generate extremely high closed circuit fluid temperatures of up to 150°C. Plastic pipe cannot withstand these temperatures and **MUST NOT** be used. Failure of plastic pipe can lead to the release of high temperature closed circuit fluid and cause severe water damage and flooding. Refer to Warning on page 35.

PATENTS

This water heater may be protected by one or more patents or registered designs.

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The other pages are intended for the installer but may be of interest.

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ABOUT YOUR WATER HEATER

MODEL TYPE

Congratulations for choosing a Rheem® water heater. Your Rheem solar Premier Loline water heater is designed for the solar collectors to be roof mounted and the solar storage tank to be installed at ground or floor level. The solar storage tank is suitable for installation either outdoor or indoor and with either Rheem S 200 or T 200 solar collectors. The system is suitable for installation in areas subject to frost or freeze conditions. Freeze conditions occur below 6°C.

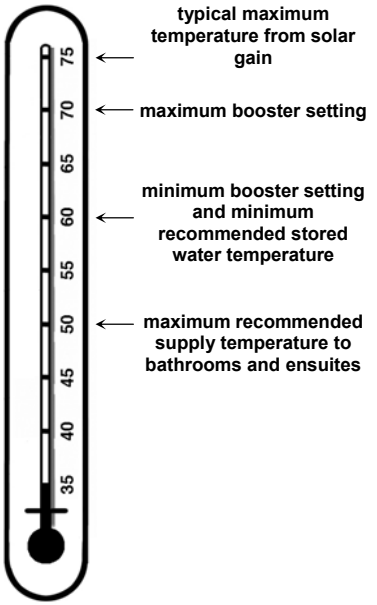
HOW HOT SHOULD THE WATER BE?

The solar control unit will circulate the closed circuit fluid through the solar collectors until a temperature of approximately 75°C is reached in the solar storage tank.

During periods of low solar energy gain, the water temperature can be boosted by the thermostatically controlled electric booster heating unit. This may be operated manually or automatically depending on how it is wired. Refer to page 10 or check with your electrician.

To meet the requirements of the National Plumbing Standard the temperature of the stored water must not be below 60°C.

Rheem recommends the thermostat is set at 60°C to maximise solar contribution.



HOTTER WATER INCREASES THE RISK OF SCALD INJURY

This water heater can deliver water at temperatures which can cause scalding. Check the water temperature before use, such as when entering a shower or filling a bath or basin, to ensure it is suitable for the application and will not cause scald injury.

We recommend and it may also be required by regulations that an approved temperature limiting device be fitted into the hot water pipe work to the bathroom and ensuite when this water heater is installed. This will keep the water temperature below 50°C at the bathroom and ensuite. The risk of scald injury will be reduced and still allow hotter water to the kitchen and laundry.

ABOUT YOUR WATER HEATER

TEMPERATURE ADJUSTMENT

The water heater features a tradesperson adjustable thermostat. This requires a licensed tradesperson to make any temperature adjustments. The thermostat has a maximum temperature setting of 70°C and a minimum temperature setting of 60°C.

We advise you have your electrician adjust the thermostat to the lowest setting which meets your needs, especially if there are young children or elderly people in the home. Refer to "Hotter Water Increases the Risk of Scald Injury" on page 4.

⚠ WARNING

This water heater is only intended to be operated by persons who have the experience or the knowledge and the capabilities to do so. This water heater is not intended to be operated by persons with reduced physical, sensory or mental capabilities i.e. the infirm, or by children. Children should be supervised to ensure they do not interfere with the water heater.

This water heater uses 240 V AC electrical power for operation of the control systems and the electrically operated components. The removal of the front covers will expose 240 V wiring. They must only be removed by an authorised or qualified person.

Care should be taken not to touch the pipe work connecting the solar storage tank and the solar collectors. Very high temperature closed circuit fluid can be generated by the solar collectors under certain conditions and flow through the pipe work from the solar collectors to the solar storage tank.

SAFETY

This water heater is supplied with a thermostat, an over-temperature energy cut-out, temperature sensors, a pressure relief valve and a combination temperature pressure relief valve. These devices must not be tampered with or removed. The water heater must not be operated unless each of these devices is fitted and is in working order.

If the electrical conduit to the solar storage tank is damaged, it must be replaced by an authorised person in order to avoid a hazard. Phone your nearest Rheem Service Department or Accredited Service Agent to arrange for an inspection.

The warranty can become void if relief valves or other safety devices are tampered with or if the installation is not in accordance with these instructions.

ABOUT YOUR WATER HEATER

TO TURN OFF THE WATER HEATER

If you plan to be away from home for a few nights, we suggest you leave the water heater switched on.

If it is necessary to turn off the water heater:

- Switch off the electrical supply at the isolating switch to the solar storage tank.
- Close the cold water isolation valve at the inlet to the water heater.

TO TURN ON THE WATER HEATER

- Open the cold water isolation valve fully at the inlet to the water heater.
- Open all of the hot water taps in the house (don't forget the shower).

  Air will be forced out of the taps.
- Close each tap as water flows freely from it.
- Switch on the electrical supply at the isolating switch to the solar storage tank.

  The electrical supply must be switched on for the solar controls to operate and solar gain to be achieved.

HOW DO I KNOW IF THE WATER HEATER IS INSTALLED CORRECTLY?

Installation requirements are shown on page 30. The water heater must be installed by an authorised person and the installation must comply with National Standards AS/NZS 3500.4, AS/NZS 3000 and all local codes and regulatory authority requirements. In New Zealand, the installation must conform with the New Zealand Building Code.

ABOUT YOUR WATER HEATER

PIPE WORK AND INSULATION

The solar hot and solar cold pipe work between the solar storage tank and the solar collectors **MUST BE** of copper and fully insulated with closed cell polymer insulation or similar (minimum thickness 13 mm). The insulation must be weatherproof and UV resistant if exposed. The insulation will offer corrosion protection to a metal roof against water runoff over the copper pipe, assist in avoiding accidental contact with the solar pipe work and also reduce pipe heat losses.

The insulation must be fitted up to the connections on both the solar collectors and the solar storage tank, as very high temperature closed circuit fluid can flow from the solar collectors to the solar storage tank under certain conditions.

There must be a continuous fall in the pipe work from the solar collectors to the solar storage tank. The continuous fall is essential to assist in the drain back function of the solar system.

Plastic pipe **MUST NOT** be used, as it will not withstand the temperature of the closed circuit fluid generated by the solar collectors under certain conditions (refer to Warning on page 35).

RAIN WATER TANK

If the solar collectors and solar pipe work are installed on a section of roof which is part of a rain water runoff collection system, then it is recommended this section of roof and its gutter be isolated from the rain water collection system. The gutter should be isolated to a width greater than the solar collectors and pipe work and must have suitable drainage. This is to ensure in the event of a leak from the solar collectors or pipe work, a rainwater tank cannot be contaminated with closed circuit fluid.

The closed circuit fluid contains food grade additives (rust inhibitor and anti-freeze agent), is non-toxic and is harmless to the environment. However, if it enters a rain water tank, it can kill off microscopic algae which are typically present in the water causing an unpleasant odour to develop and resulting in the rain water tank having to be drained and cleaned.

DOES THE WATER QUALITY AFFECT THE WATER HEATER?

The water heater is suitable for most public water supplies, however some water qualities may have detrimental effects on the cylinder and fittings. **If you are in a known harsh water area you must read page 76**. If you are not sure, have your water quality checked against the conditions described on page 76.

ABOUT YOUR WATER HEATER

HOW LONG WILL THE WATER HEATER LAST?

There are a number of factors that will affect the length of service the water heater will provide. These include the water quality, the water pressure, temperature (inlet and outlet) and the water usage pattern. However, your Rheem water heater is supported by a comprehensive warranty (refer to page 80).

ANODE PROTECTION

The anode(s) installed in your water heater will slowly dissipate whilst protecting the cylinder. The life of the water heater cylinder may be extended by arranging for an authorised person to inspect the anode(s) and replace if required.

The suggested time after installation when the anode(s) should be inspected is 8 years.

For softened water supplies or in areas of poor water quality, it is recommended the anode(s) be inspected 3 years earlier than shown (refer to "Water Supplies" on page 76).

FREEZE PROTECTION

The solar circuit must be installed with a continuous fall in the pipe work from the solar collectors to the solar storage tank, the solar hot and solar cold pipes must be fully insulated with closed cell polymer insulation (minimum thickness 13 mm) and the system charged with correctly mixed closed circuit fluid to offer protection against freeze damage. The system has NO WARRANTY for freeze damage if there is not a continuous fall in the solar hot and solar cold pipes, or they are uninsulated, or the closed circuit fluid has been incorrectly mixed (refer to "Warranty Exclusions" on page 79 and to "Pipe Work and Insulation" on page 7).

The anti freeze control of the solar circuit is designed so there is no closed circuit fluid in the solar collectors or solar cold and solar hot pipes when the pump is off.

Notes:

- Pipe work to and from the water heater must be adequately insulated to prevent freezing.
- The water heater is not suitable for installation in areas where the ambient temperature falls below -20ºC.
- Refer to "Warranty Exclusions" on page 79.

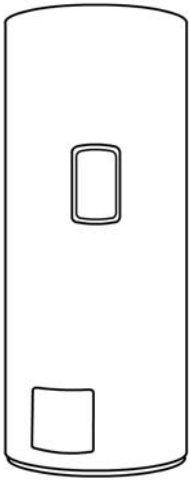
HOW YOUR WATER HEATER WORKS

SOLAR OPERATION

The Rheem Premier Loline solar water heater has its vitreous enamel lined solar storage tank installed at ground or floor level, remotely from the solar collectors. This water heater is an indirect solar hot water system with a heat exchanger in the solar storage tank. The heat exchanger is filled with closed circuit fluid and is connected to the solar collectors forming a closed circuit.

As the sun heats the solar collectors, the increase in temperature activates the pump. The pump switches on whenever the solar collectors are hotter than the water in the tank. The pump moves the closed circuit fluid from the solar storage tank heat exchanger through an insulated copper pipe to the solar collectors to be heated by the sun's energy and then back to the heat exchanger. Heat transfers from the closed circuit fluid in the heat exchanger to the water stored in the solar storage tank.

This process continues while solar energy is available and until the water in the solar storage tank reaches a temperature of approximately 75°C. The pump is then deactivated and the closed circuit fluid in the solar collectors and solar pipe work drains back into the heat exchanger in the solar storage tank.



The closed circuit provides protection to the solar collectors and solar circuit in harsh water areas. The drain back principle provides protection to the system in freezing conditions.

Automatic safety controls are fitted to the water heater to provide safe and efficient operation.

MAINS PRESSURE

The water heater is designed to operate at mains pressure by connecting directly to the mains water supply. If the mains supply pressure in your area exceeds that shown on page 23, a pressure limiting valve must be fitted. The supply pressure should be greater than 350 kPa for true mains pressure operation to be achieved.

HOW YOUR WATER HEATER WORKS

ELECTRIC BOOSTING

Water stored in the solar storage tank can be heated by an electric booster heating unit. The booster heating unit is for heating the water at times of low solar energy gain, such as during very cloudy or rainy weather, or during the winter months. The Premier Loline water heater is suitable for the heating unit to be connected to a continuous or an extended Off-Peak electricity supply.

The booster heating unit is controlled by an electric thermostat. The thermostat and its over temperature energy cut out are mounted on the solar storage tank behind the upper front cover. The water temperature is automatically controlled to the thermostat setting when the booster heating unit is energised.

MANUAL CONTROLS

An isolating switch is installed in your electrical meter box for your solar storage tank. Rheem recommends an additional manual isolating switch be installed in the power supply circuit to the solar storage tank. This booster switch should be installed in a convenient location such as the kitchen or laundry and will enable control of the electrical boosting during periods of poor solar gain.

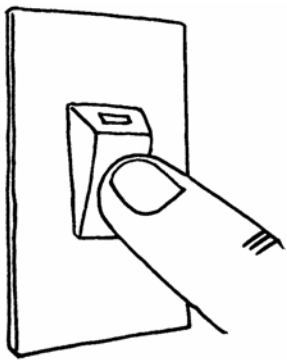
A suitably rated single-pole on / off switch or timer control switch should be used to control a booster heating unit connected to an Extended Off-Peak electricity supply. A booster heating unit connected to a continuous electricity supply should be controlled by either a suitably rated single pole on / off switch or "One Shot Control" switch or timer control switch.

The amount of water heated by the raised booster heating unit of your Premier Loline storage tank will be 125 litres (270 model).

MANUAL ON/OFF SWITCH

a) Continuous or Time of Use Tariff Connection

Electricity will be available for the booster heating unit at all times. Operate the booster switch to activate the auxiliary booster heating unit when the hot water falls below an acceptable temperature. The amount of water heated depends on your installation (refer to "Manual Controls" on page 10).



If on a 'Time of Use' tariff, then it may be cheaper to use the booster at particular times (check with your local Electricity Supply Authority for tariffs at different hours of operation).

HOW YOUR WATER HEATER WORKS

It is important to ensure the booster switch is turned OFF after you have satisfied your hot water needs. Do not leave the booster switch ON in daylight hours because your solar savings will be reduced.

b) Extended Off-Peak (overnight and day) Tariff Connection

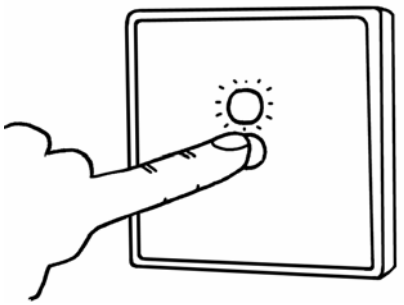
Operation is very similar to that suggested for continuous tariff, but it is important to be aware of the hours during which electricity is available so boosting, if required, can be adapted to suit (check with your local Electricity Supply Authority for hours of operation).

Do not leave the booster switch on during daylight hours unless boosting is required, as solar savings will be reduced.

"ONE SHOT CONTROL" SWITCH

The "One Shot Control" switch will help provide maximum savings with an electrically boosted solar water heater connected to a **continuous** electricity supply. Power must be available to the "One Shot Control" switch before the booster heating unit can be activated.

The switch has a push button operation and incorporates an indicator light. Refer to the manufacturer's instructions supplied with the "One Shot Control" switch for information on how the indicator light arrangement works.



When you decide the hot water is below a usable temperature and additional hot water is required, press the control button. The booster heating unit will be turned "ON" if the water temperature is below the thermostat setting, then automatically turn "OFF" when the water temperature reaches the thermostat setting.

It is not necessary to activate the booster heating unit every time the light indicates that boosting may be required. The water may still be at a usable temperature for some purposes (e.g. showering) and you may not need to use hot water for some hours during which time the water may be heated by the sun.

HOW YOUR WATER HEATER WORKS

TIMER CONTROL SWITCH

A timer control switch will help provide maximum savings with an electrically operated boosted solar water heater connected to a continuous or an extended Off-Peak electricity supply. If used with an extended Off-Peak supply, the timer control switch should be a type which has an internal rechargeable battery to keep time when the power supply is not available to the timer. Power must be available to the timer control switch before the booster heating unit can be activated.

The timer control switch should be set to suit the hot water consumption pattern of the household. It is recommended only one or two periods per day, prior to peak hot water consumption periods, be programmed into the timer. Suggested periods, based on a 3.6 kW heating unit, are:

- between 4:30 PM and 6:30 PM (270 model),

  and if a second boost period is required
- between 4:30 AM and 6:30 AM (270 model).

This will be sufficient for most installations. If the water heater has a 4.8 kW booster heating unit, these periods could be reduced by 30 minutes with the start time delayed, or a 2.4 kW booster heating unit, extended by 45 minutes with the start time brought forward.

The booster heating unit will only activate if heating is required. When the water is below the thermostat setting, the booster heating unit will turn on and heat the water. The booster heating unit will automatically turn off either when the temperature of the water reaches the thermostat setting or at the end of the timer period, whichever comes first.

A manual on / off switch can also be installed between the timer control switch and the water heater. This can be used to provide further control over the boosting of the water temperature. Refer to “Manual On / Off Switch” on page 10.

Remember, even on cloudy days your solar water heater can receive diffuse radiation, which will provide some heat to your stored water. On these days you will need to operate the booster heating unit only as desired. For summer operation it is recommended trial periods be undertaken to determine if it is necessary to turn the booster switch or one shot control ‘on’ at all.

HOW YOUR WATER HEATER WORKS

SOLAR MONITOR

The solar storage tank incorporates a solar monitor. The solar monitor is located on the lower front cover and houses both a green and a red LED.

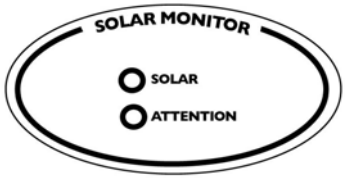
The green LED, marked “Solar”, indicates the current operational mode of the solar water heater and the red LED, marked “Attention”, indicates a fault mode.

The green LED will emit either a constant glow or a series of flashes, with a 2 second interval between flashes.

The red LED will emit a series of flashes, with a 2 second interval between flashes, only if there is a particular fault condition with the system.

The operational modes are:

Flashes	Operational Modes
solid green (remains on)	Standby mode
1 x green	Flooding solar circuit
2 x green	Checking solar contribution
3 x green	Pump flow control
4 x green	Pump flow established
5 x green	Tank at maximum temperature
no green (remains off)	Call for service



If the power supply to the water heater is on and the green LED is off or the red LED is flashing, this indicates there is a fault with the water heater. The red LED may emit up to five flashes in each series of flashes. Count the number of flashes and phone your nearest Rheem Service Department or Accredited Service Agent to arrange for an inspection.

GOING ON HOLIDAYS

It is not necessary to switch off the electrical supply at the isolating switch to the water heater if you are going away. However, if it is necessary to switch off the power to the water heater, refer to “To Turn Off The Water Heater” on page 6.

REGULAR CARE

TEMPERATURE PRESSURE RELIEF VALVE

This valve is near the top of the water heater and is essential for its safe operation. It is possible for the valve to release a little water through the drain line during each heating period. This occurs as the water is heated and expands by approximately 1/50 of its volume.

Continuous leakage of water from the valve and its drain line may indicate a problem with the water heater (refer to "Temperature Pressure Relief Valve Running" on page 18).

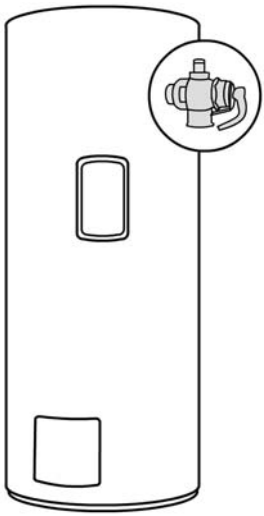
⚠ **Warning:** Never block the outlet of this valve or its drain line for any reason.

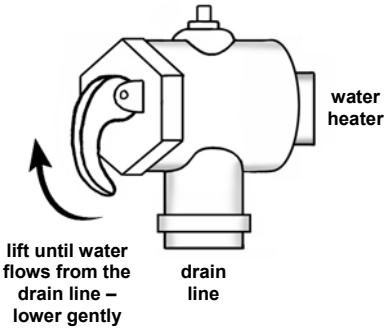
Operate the easing lever on the temperature pressure relief valve once every six months. **It is very important you raise and lower the lever gently.**

⚠ **DANGER:** Failure to do this may result in the water heater cylinder failing, or under certain circumstances, exploding.

If water does not flow freely from the drain line when the lever is lifted, then the water heater should be checked by the Rheem Service Department or their Accredited Service Agent.

The temperature pressure relief valve should be checked for performance or replaced at intervals not exceeding 5 years, or more frequently in areas where there is a high incidence of water deposits (refer to "Water Supplies" on page 76).





REGULAR CARE

EXPANSION CONTROL VALVE

In many areas, including South Australia, Western Australia and scaling water areas, an expansion control valve is fitted to the cold water line to the water heater. The expansion control valve may discharge a small quantity of water from its drain line during the heating period instead of the temperature pressure relief valve on the water heater.

Operate the easing lever on the expansion control valve once every six months. **It is very important you raise and lower the lever gently.** The expansion control valve should be checked for performance or replaced at intervals not exceeding 5 years, or more frequently in areas where there is a high incidence of water deposits.

COLLECTOR GLASS

Ensure the glass on your solar collectors is free of dust, salt spray or any other matter, which may reduce the effectiveness of the solar collectors. If the collector glass becomes dirty, hose down or if the solar collectors are accessible, wash the collector glass with water and a soft brush when the solar collectors are cool. Have any trees trimmed which may shade the solar collectors.

SAVE A SERVICE CALL

Check the items below before making a service call. You will be charged for attending to any condition or fault that is not related to manufacture or failure of a part.

NOT ENOUGH HOT WATER (OR NO HOT WATER)
This can occur with new installations and is normally related to some misunderstandings as to the use of the booster heating unit.

- **Booster heating unit not operating**
  Inspect the isolating switch marked "HOT WATER" or "WATER HEATER" at the switchboard and the booster switch (if one is installed) and ensure they are turned "ON".

  Note: Check the electricity supply to which the unit is connected. If on an Extended Off-Peak or time controlled supply, remember heating hours are restricted (refer to "Extended Off-Peak Tariff" on page 11).

  Check the fuse marked "HOT WATER" or "WATER HEATER" at the switchboard.

- **Solar Controller**
  Check the electrical supply to the solar control unit is switched on.

  Is power available in the house? Try using another electrical appliance.

- **Insufficient sunlight**
  Insufficient sunlight due to cloudy weather during summer months or low solar energy contribution in winter months may mean the booster water heater operates more often.

- **Collectors shaded**
  If trees or other objects shade the solar collectors or if the glass is dirty, the effectiveness of the solar collectors will be greatly reduced. Have the trees trimmed or the solar collectors relocated if the obstruction is permanent or clean the collector glass (refer to "Collector Glass" on page 15).

- **Collector area is too small**
  For most installations, the number of solar collectors recommended in Rheem literature has been proven to provide the required solar energy to meet the average family needs. However, in some circumstances, it may be necessary to install an additional solar collector.

SAVE A SERVICE CALL

- **Are you using more hot water than you think?**
  Is one outlet (especially the shower) using more hot water than you think?

  Very often it is not realised the amount of hot water used, particularly when showering. Carefully review the family's hot water usage. As you have installed an energy saving appliance, energy saving should also be practised in the home. Adjust your water usage pattern to take advantage of maximum solar gains.

  Have your plumber install a flow control valve to each shower outlet, basin and sink to reduce water usage.

- **Temperature pressure relief valve running**
  Is the relief valve discharging too much water? (Refer to "Temperature Pressure Relief Valve Running" on page 18).

- **Thermostat setting**
  Ensure the thermostat setting is appropriate. You may choose to have your electrician adjust the thermostat upwards to gain additional hot water capacity when boosting. Refer to "Temperature Adjustment" on page 5.

  ⚠ **Warning:** Hotter water increases the risk of scald injury.

- **Water heater size**
  Do you have the correct size water heater for your requirements? The sizing guide in the sales literature and on the Rheem website (www.rheem.com.au) suggests average sizes that may be needed.

NO WATER FROM THE HOT TAP
No flow of water from the hot tap may indicate a restriction in or failure of the cold water supply to the water heater. Check for water flow at other taps and that the cold water isolation valve (refer to page 36) is fully open.

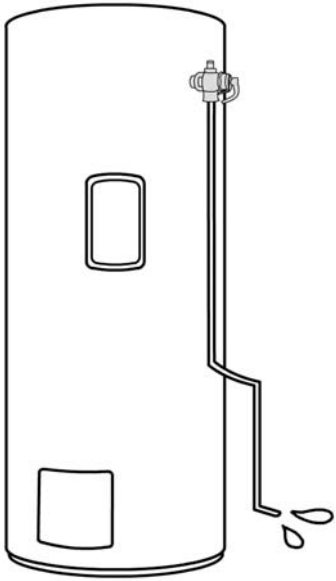
WATER NOT HOT ENOUGH
You may find that due to heavy hot water usage or low solar energy gain the water temperature may be lower than normally expected. You will need to carefully plan your use of the booster heating unit to boost the water temperature on such occasions.

A lower water temperature may also be noticed in the morning when the booster heating unit has not been switched on overnight. This in particular may be experienced during periods of low solar energy gain, or if there has been heavy hot water usage the previous night.

SAVE A SERVICE CALL

TEMPERATURE PRESSURE RELIEF VALVE RUNNING

- **Normal Operation**
  It is normal and desirable this valve allows a small quantity of water to escape during the heating cycle. However, if it discharges more than a bucket full of water in 24 hours, there may be another problem.



- **Continuous dribble**
  Try gently raising the easing lever on the relief valve for a few seconds (refer to "Temperature Pressure Relief Valve" on page 14). This may dislodge a small particle of foreign matter and clear the fault. Release the lever gently.

- **Steady flows for long period (often at night)**
  This may indicate the mains water pressure sometimes rises above the designed pressure of the water heater. Ask your installing plumber to fit a pressure limiting valve.

  ⚠ **Warning:** Never replace the relief valve with one of a higher pressure rating.

- **Heavy flows of hot water until the water heater is cold - then stops until water reheats**
  The water heater **must** be switched off at the isolating switch or switchboard. Phone your nearest Rheem Service Department or Accredited Service Agent to arrange for an inspection.

EXPANSION CONTROL VALVE RUNNING

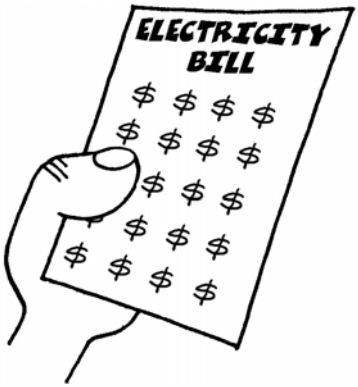
If an expansion control valve is fitted in the cold water line to the water heater (refer to page 36) it may discharge a small quantity of water instead of the temperature pressure relief valve on the water heater. The benefit is that energy is conserved as the discharged water is cooler.

SAVE A SERVICE CALL

HIGH ELECTRICITY BILLS

With the installation of your new solar hot water system, maximum energy savings can be achieved with careful planning of hot water usage. Should you at any time, feel your electricity account is too high, we suggest you check the following points:

- Is the relief valve running excessively? (Refer to "Temperature Pressure Relief Valve Running" on page 18).
- Is one outlet (especially the shower) using more hot water than you think? (Refer to "Not Enough Hot Water" on page 16).
- Is there a leaking hot water pipe, dripping hot water tap, etc? Even a small leak will waste a surprising quantity of hot water and energy. Replace faulty tap washers, and have your plumber rectify any leaking pipe work.
- Are you using the booster heating unit properly? (Refer to "Manual On/Off Switch" on page 10, or "One Shot Control Switch" on page 11 or "Timer Control Switch" on page 12).



- Consider recent changes to your hot water usage pattern and check if there has been any increase in tariffs since your previous account.

ELECTRICITY TARIFFS

The electricity tariff to which your solar water heater is connected will play an important role in the overall effectiveness of the system. It is important you are aware of this tariff to enable you to take full advantage of the boosting period, i.e. Extended Off-Peak (overnight and day) or extended time controlled, Domestic / Continuous or Time of Use. For types of tariffs, refer to "Manual On/Off Switch" on page 10.

SAVE A SERVICE CALL

COLLECTOR GLASS
Warranty **DOES NOT** cover breakage of solar collector glass. Check your household insurance policy covers collector glass breakage.

⚠ **Warning:** Collector glass must not be replaced whilst the solar collector is on the roof.

The collector glass is not offered as a replacement part and no attempt should be made to remove it. Should the solar collector require replacement, contact your nearest Rheem Service Department or Accredited Service Agent.

IF YOU HAVE CHECKED ALL THE FOREGOING AND STILL BELIEVE YOU NEED ASSISTANCE, CALL YOUR NEAREST RHEEM SERVICE DEPARTMENT OR ACCREDITED SERVICE AGENT.

INSTALLATION – SOLAR STORAGE TANK

THIS WATER HEATER IS NOT SUITABLE FOR POOL HEATING.

The system is suitable for installation with Rheem S 200 or T 200 solar collectors.

The solar circuit must be installed with a continuous fall of a minimum 5° in the pipe work from the solar collectors to the solar storage tank, the solar hot and solar cold pipes must be fully insulated with closed cell polymer insulation (minimum thickness 13 mm) and the system charged with correctly mixed closed circuit fluid to offer protection against freeze damage. The system has NO WARRANTY for freeze damage if there is not a continuous fall in the solar hot and solar cold pipes or they are uninsulated or the closed circuit fluid has been incorrectly mixed (refer to "Warranty Exclusions" on page 79 and to "Warning: Plumber Be Aware" on page 35). Thicker insulation may be required to comply with the requirements of AS/NZS 3500.4.

SOLAR WATER HEATER STORAGE TANK LOCATION

The solar storage tank is suitable for either outdoor or indoor installation. Whether located outdoor or indoor, the solar storage tank should be installed close to the most frequently used outlet and its position chosen with safety and service in mind.

Consideration must also be given to the position of the solar storage tank in relation to the solar collectors. There are limitations on both the maximum length of the solar hot and solar cold pipes and the maximum height between the solar storage tank and the solar collectors. Refer to "Solar Collector Location" on page 31 and to "Pipe Lengths" on page 33.

Clearance must be allowed for servicing of the solar storage tank. The solar storage tank must be accessible without the use of a ladder or scaffold. Make sure the temperature pressure relief valve lever is accessible and the front covers, thermostat and booster heating unit can be removed for service.

You must be able to read the information on the rating plate. If possible leave headroom of one water heater length so the anode can be inspected or replaced. Remember you may have to remove the entire solar storage tank later for servicing.

INSTALLATION – SOLAR STORAGE TANK

The installation must comply with these installation instructions and with the requirements of AS/NZS 3500.4, AS/NZS 3000 and all local codes and regulatory authority requirements. In New Zealand, the installation must conform with the New Zealand Building Code.

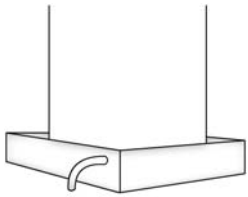
It is recommended the solar storage tank be installed at ground or floor level and must stand vertically upright. Remember all local authorities have regulations about putting water heaters into roof spaces.

Note: It is important for the solar storage tank to be orientated vertically upright in order for the falling film of closed circuit fluid to operate efficiently.

The top of the solar storage tank must be a minimum of 500 mm below the bottom of the solar collectors for the system to operate correctly.

SAFE TRAY

It is a requirement of AS/NZS 3500.4 that for a new installation, a water heater be installed in a safe tray where in the event of a leak, property may otherwise be damaged. Construction, installation and draining of a safe tray must comply with the above mentioned Standard.



FROST PROTECTION

The water heater has a frost protection system. The frost protection system will protect the water heater from damage, by preventing ice forming in the waterways of the water heater, in the event of freezing conditions occurring.

The solar collectors and solar cold and solar hot pipes only contain closed circuit fluid when the pump is operating during periods of solar gain when heating is required. When the solar pump stops operating, the closed circuit fluid drains back into the storage tank heat exchanger. The closed circuit fluid is an anti-freeze agent which, when mixed to the correct specification, can withstand temperatures of -20°C before it may freeze.

Damage to the water heater caused by freezing of the pipe work to or from the water heater is not covered under warranty. Refer to AS/NZS 3500.4 for precautions to be taken for installations in frost prone areas. The water heater is not suitable for installation in areas where the ambient temperature falls below -20ºC.

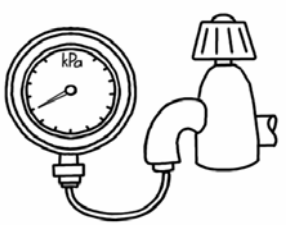
INSTALLATION – SOLAR STORAGE TANK

MAINS WATER SUPPLY

Where the mains water supply pressure exceeds that shown in the table below, an approved pressure limiting valve is required and should be fitted as shown in the installation diagram (refer to diagram on page 36).

Model	**270**
Relief valve setting	1000 kPa
Expansion control valve setting *	850 kPa
Max. mains supply pressure	
With expansion control valve	680 kPa
Without expansion control valve	800 kPa

* Expansion control valve not supplied with the water heater.



TANK WATER SUPPLY

If the water heater is supplied with water from a tank supply and a pressure pump system is not installed, then the bottom of the supply tank must be at least 1 m above the highest point of the hot water plumbing system, including the solar storage tank. Care must be taken to avoid air locks. The cold water line to the water heater should be adequately sized and fitted with a full flow gate valve or ball valve.

INSTALLATION – SOLAR STORAGE TANK

RAIN WATER TANK

If the solar collectors and solar pipe work are to be installed on a section of roof which is part of a rain water runoff collection system, then it is recommended this section of roof and its gutter be isolated from the rain water collection system. The gutter should be isolated to a width greater than the solar collectors and pipe work and must have suitable drainage. The installer should ensure in the event of a leak from the solar collectors or pipe work, a rainwater tank cannot be contaminated with closed circuit fluid.

The section of roof and gutter should be isolated from the rainwater collection system before the commissioning of the solar water heater, so that any leak or spillage during commissioning does not make its way into the rainwater tank.

This section of roof and guttering can be isolated by either:

- blocking this section of gutter from the remaining gutter and fitting two separate down pipes, one to take any run-off water from that section of roof away to drain and the other to the rainwater collection side of the gutter to take the rain water run off to the rain water tank.
- blocking this section of gutter from the remaining gutter and fitting a tube or pipe of a material compatible with the gutter material in this section of the gutter and penetrating the separation pieces at either end to allow rainwater runoff to pass from one part of the rainwater collection system to the other. It may be necessary to fit a down pipe to the section of blocked gutter to take any run-off water from that section of roof away to drain.
- installing a false gutter inside of the existing gutter, with a down pipe penetrating the existing gutter to take any run-off water from that section of roof away to drain. The false gutter should be no deeper than half of the depth of the existing gutter, so as to enable rain water run off to flow under the false gutter.
- installing a flashing from the underside of the roofing material, with a continuous fall, to over the outside lip of the gutter. The flashing should extend wider than the collectors and pipe work and turned up at the ends so if there is leakage of closed circuit fluid, it cannot enter the gutter.

If any of these solutions are not practical, then the installer should discuss alternative options to suit the installation with the house holder.

Any alterations to the roof drainage system must comply with the relevant building regulations, codes and standards.

INSTALLATION – SOLAR STORAGE TANK

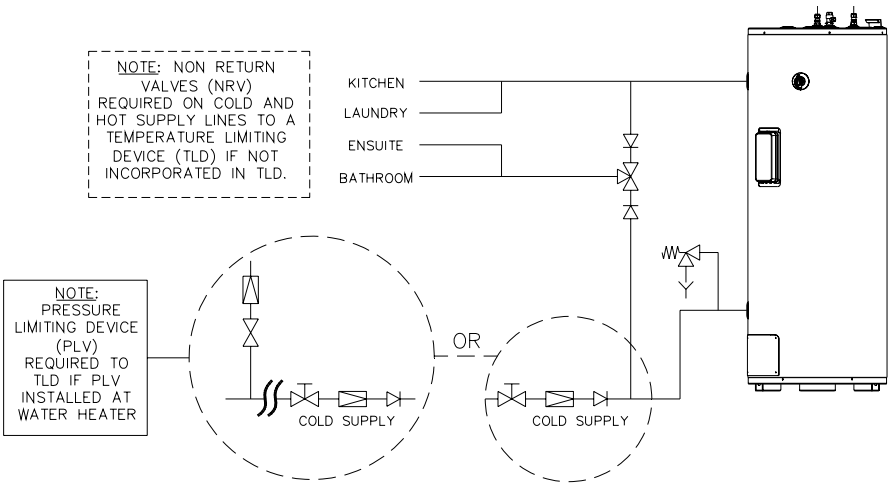
HOT WATER DELIVERY

This water heater can deliver water at temperatures which can cause scalding.

It is necessary and we recommend that a temperature limiting device be fitted between the water heater and the hot water outlets in any ablution area such as a bathroom or ensuite, to reduce the risk of scalding. The installing plumber may have a legal obligation to ensure the installation of this water heater meets the delivery water temperature requirements of AS/NZS 3500.4 so that scalding water temperatures are not delivered to a bathroom, ensuite or other ablution area.

The temperature limiting device used with a solar water heater should have a specified minimum temperature differential, i.e. between the hot water inlet and the tempered water outlet, of no greater than 10°C.

Where a temperature limiting device is installed adjacent to the closed circuit solar water heater, the cold water line to the temperature limiting device can be branched off the cold water line either before or after the isolation valve, pressure limiting valve and non return valve to the solar storage tank. If an expansion control valve is required, it must always be installed after the non return valve and be the last valve prior to the solar storage tank.


NOTE: NON RETURN VALVES (NRV) REQUIRED ON COLD AND HOT SUPPLY LINES TO A TEMPERATURE LIMITING DEVICE (TLD) IF NOT INCORPORATED IN TLD.
KITCHEN
LAUNDRY
ENSUITE
BATHROOM
NOTE: PRESSURE LIMITING DEVICE (PLV) REQUIRED TO TLD IF PLV INSTALLED AT WATER HEATER
OR
COLD SUPPLY
COLD SUPPLY

Two Temperature Zones Using Temperature Limiting Device

INSTALLATION – SOLAR STORAGE TANK

If a pressure limiting valve is installed on the cold water line to the solar storage tank and the cold water line to a temperature limiting device branches off before this valve or from another cold water line in the premises, then a pressure limiting valve of an equal pressure setting may be required prior to the temperature limiting device.

CIRCULATED HOT WATER FLOW AND RETURN SYSTEM

A solar water heater should not be installed as part of a circulated hot water flow and return system in a building. The benefits of solar gain will be significantly reduced and energy gained from the sun lost through the pipe work.

If a circulated flow and return system is required, it is necessary to bypass the solar water heater and install a secondary water heater connected to the hot water flow and return line and supplied from the solar water heater. The secondary water heater must be a storage water heater able to provide a hot water outlet temperature of at least 60°C. **Note:** The thermostat must always be set to at least 60°C. Refer to the diagram on page 27.

Temperature Limiting Device

A temperature limiting device cannot be installed in circulated hot water flow and return pipe work. The tempered water from a temperature limiting device cannot be circulated.

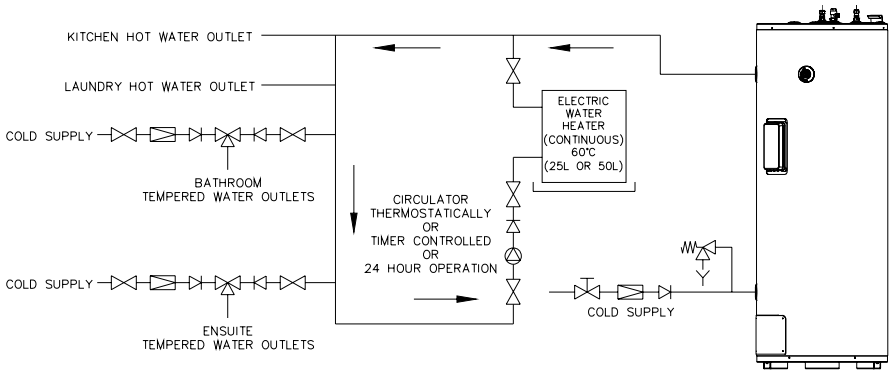
Where a circulated hot water flow and return system is required in a building, a temperature limiting device can only be installed on a dead leg, branching off the circulated hot water flow and return pipe.

If circulated tempered water were to be returned back to the water heater, depending on the location of the return line connection on the water supply line to the water heater, then either:

- water will be supplied to the cold water inlet of the temperature limiting device at a temperature exceeding the maximum recommended water supply temperature, or
- when the hot taps are closed no water will be supplied to the cold water inlet of the temperature limiting device whilst hot water will continue to be supplied to the hot water inlet of the temperature limiting device.

These conditions may result in either water at a temperature exceeding the requirements of AS/NZS 3500.4 being delivered to the hot water outlets in the ablution areas, or the device closing completely and not delivering water at all, or the device failing. Under either condition, the operation and performance of the device cannot be guaranteed.

INSTALLATION – SOLAR STORAGE TANK



Circulated Hot Water Flow and Return System – Solar Water Heater

REDUCING HEAT LOSSES

The cold water line to and the hot water line from the water heater must be insulated in accordance with the requirements of AS/NZS 3500.4. The insulation must be weatherproof and UV resistant if exposed.

The pipe work between the solar storage tank and the solar collectors must be fully insulated with closed cell polymer insulation or similar (minimum thickness 13 mm). Thicker insulation may be required to comply with the requirements of AS/NZS 3500.4. The insulation must be weatherproof and UV resistant if exposed. The insulation must be fitted up to the connections on both the solar storage tank and the solar collectors.

ANODE TYPES

The correct anode type for the water supply being used must be fitted in the water heater (refer to "Water Supplies" on page 76). The black anode is fitted as standard.

Total Dissolved Solids in water supply to the water heater	Anode colour code
0 – 40 mg/L	Green
40 – 600 mg/L	Black
600 – 2500 mg/L	Blue

INSTALLATION – SOLAR STORAGE TANK

SADDLING - PIPE WORK

To prevent damage to the cylinder when attaching pipe clips or saddles to the water heater jacket, we recommend the use of self-drilling screws with a maximum length of 13 mm. Should pre drilling be required, extreme caution must be observed when penetrating the jacket of the water heater.

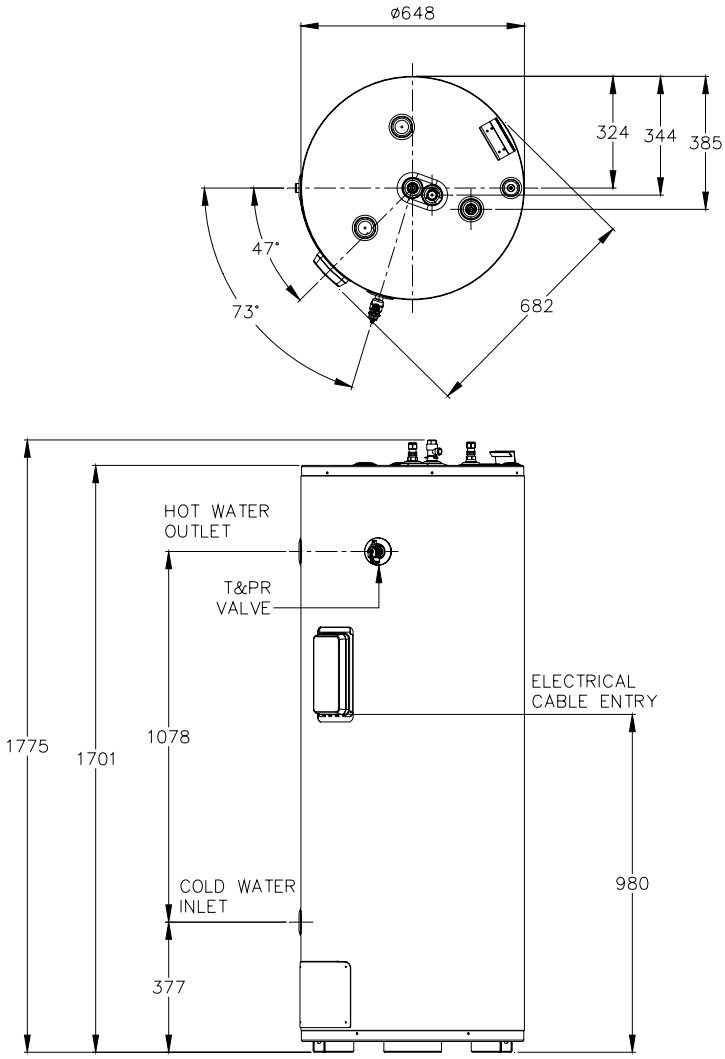
Note: Damage to the cylinder as a result of saddling to the jacket will void the warranty.

BOOSTER HEATING UNIT

The booster heating unit provides hot water during periods of low solar gain. This can be connected to either Extended Off-Peak (overnight and day) electricity supply or a continuous / time of use electricity supply. Boosting can be controlled via a user operated manual switch. Refer to "Manual Controls" on page 46.

INSTALLATION – SOLAR STORAGE TANK

DIMENSIONS AND TECHNICAL DATA

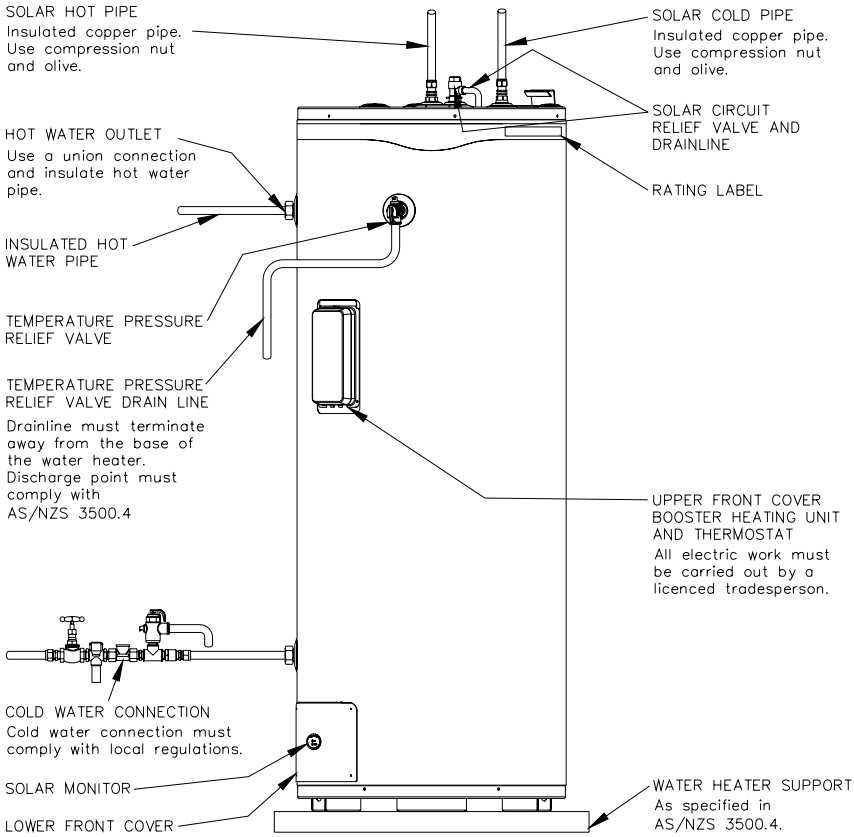


Model	591 270	Storage capacity	270 litres	Mass	146 kg (empty)
		Boost capacity	125 litres		416 kg (full)

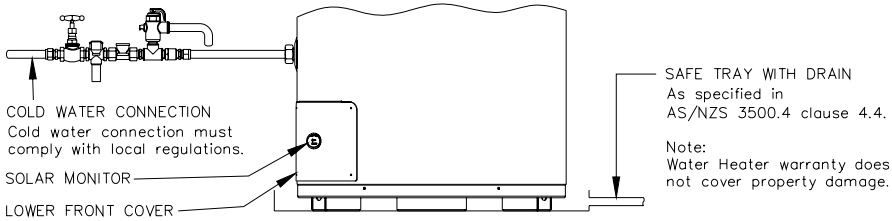
Specifications are subject to change with ongoing product improvements.

INSTALLATION – SOLAR STORAGE TANK

TYPICAL INSTALLATION – OUTDOOR LOCATION


SOLAR HOT PIPE
Insulated copper pipe. Use compression nut and olive.
SOLAR COLD PIPE
Insulated copper pipe. Use compression nut and olive.
SOLAR CIRCUIT RELIEF VALVE AND DRAINLINE
RATING LABEL
HOT WATER OUTLET
Use a union connection and insulate hot water pipe.
INSULATED HOT WATER PIPE
TEMPERATURE PRESSURE RELIEF VALVE
TEMPERATURE PRESSURE RELIEF VALVE DRAIN LINE
Drainline must terminate away from the base of the water heater. Discharge point must comply with AS/NZS 3500.4
UPPER FRONT COVER BOOSTER HEATING UNIT AND THERMOSTAT
All electric work must be carried out by a licenced tradesperson.
COLD WATER CONNECTION
Cold water connection must comply with local regulations.
SOLAR MONITOR
LOWER FRONT COVER
WATER HEATER SUPPORT
As specified in AS/NZS 3500.4.

TYPICAL INSTALLATION – INDOOR LOCATION

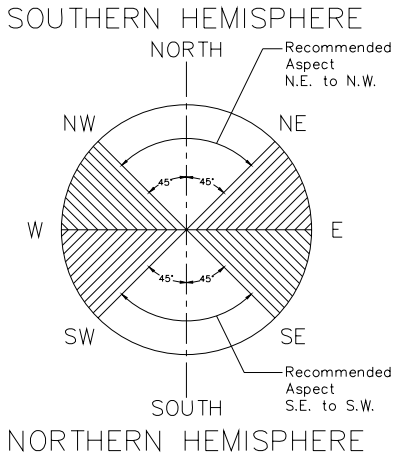

COLD WATER CONNECTION
Cold water connection must comply with local regulations.
SOLAR MONITOR
LOWER FRONT COVER
SAFE TRAY WITH DRAIN
As specified in AS/NZS 3500.4 clause 4.4.
Note:
Water Heater warranty does not cover property damage.

INSTALLATION – SOLAR COLLECTORS

SOLAR COLLECTOR LOCATION

Consideration must be given to the position of the solar collectors in relation to the solar storage tank. There are limitations on both the maximum length of the solar hot and solar cold pipes and the maximum height between the solar storage tank and the solar collectors. Refer to "Solar Storage Tank Location" on page 21 and to "Pipe Lengths" on page 33.

- The solar collectors must be installed in a shade free position.
- The solar collectors are to be installed facing toward the equator (i.e. north facing in the southern hemisphere and south facing in the northern hemisphere). Where this orientation is not practical, a system facing up to 45° from the equator will have its efficiency reduced by approximately 4%.
- Inclination of the solar collectors should be approximately equal to 90% of the local latitude angle. The latitudes of some Australian cities are listed on page 32. Solar collectors may be installed at the roof angle for simplicity of installation and appearance, but must never be less than 10°. If the roof angle varies by 15° from the correct angle, efficiency will be reduced by 10%.



- For an installation on a roof with a pitch less than 10°, a Variable Pitch stand is required. Refer to your local Solar Distributor for details.
- For an installation at right angles to (across) the roof pitch, a Flat Roof stand and an Across Pitch kit are both required. Refer to your local Solar Distributor for details.
- For an installation opposite to (against) the roof pitch, a Flat Roof stand and an Against Pitch kit are both required. Refer to your local Solar Distributor for details.
- The collector kit is suitable for installations with an inclination of up to 45°. Where the solar collectors are installed at inclinations greater than 45°, a With Pitch frame is necessary. Refer to your local Solar Distributor for details.

INSTALLATION – SOLAR COLLECTORS

- The roof must be suitable to take the mass of the solar collectors. Each solar collector and its fittings weighs approximately 45 kg when full of water.
- The installation must comply with the requirements of AS/NZS 3500.4 and all local codes and regulatory authority requirements.
- Refer to the installation instructions supplied with the collector kit for details on the installation of the solar collectors.

LATITUDE OF SOME AUSTRALIAN CITIES

Adelaide	35°S	Cairns	17°S	Hobart	42°S	Port Hedland	20°S
Alice Springs	24°S	Canberra	35°S	Mildura	34°S	Rockhampton	24°S
Brisbane	27°S	Darwin	12°S	Melbourne	38°S	Sydney	34°S
Broken Hill	31°S	Geraldton	28°S	Perth	32°S	Townsville	19°S

INSTALLATION – SOLAR COLLECTORS

PIPE LENGTHS

The solar hot and solar cold pipes between the solar storage tank and the solar collectors shall:

- be of DN15 hard drawn copper pipe.
- have a continuous fall from the solar collectors to the solar storage tank of a minimum 5° (1 in 10 grade).
- not exceed the maximum recommended lengths as specified in the table.

Maximum recommended total combined pipe length (solar cold + solar hot) and number of 90° bends				
Pipe Size	1 or 2 Collectors		3 Collectors	
	Pipe Length	90° Bends	Pipe Length	90° Bends
DN15	40 metres	20	30 metres	20

For each additional 90° bend, reduce the maximum total pipe length by 0.5 metres.
For each additional metre of pipe length, reduce the number of 90° bends by two.
Note: One 90° elbow is equal to two 90° bends.

Notes:

- It is important not to cross connect the solar cold and solar hot pipes to the incorrect connections.
- The solar cold pipe connects to the bottom of the solar collectors and the solar hot pipe connects to the top of the solar collectors diagonally opposite to the solar cold pipe connection.
- The hot sensor connection is at the top of the solar collector, directly above the solar cold inlet connection.
- Refer to "Warning: Plumber – Be Aware" on page 35.

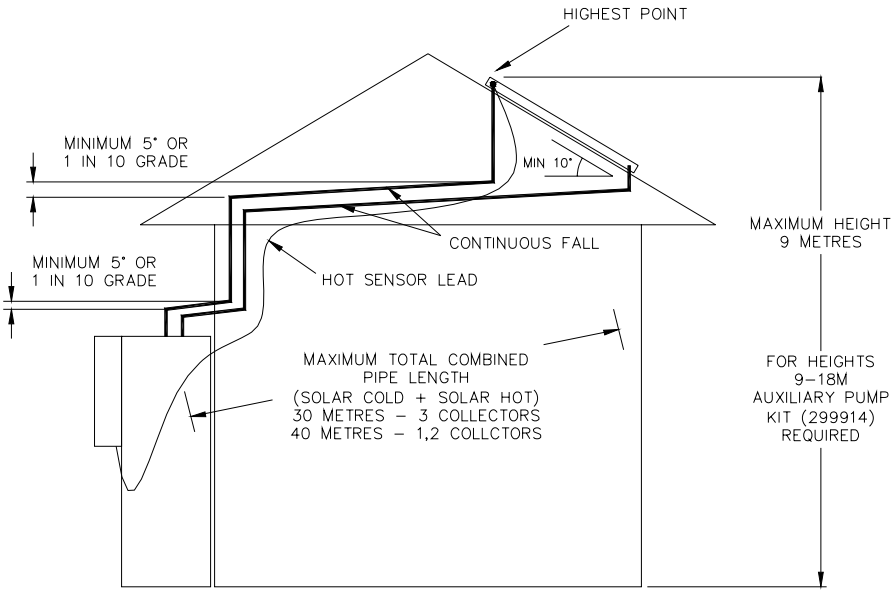
It is essential for these requirements to be followed for the system to operate correctly and efficiently. Solar pipe work which is oversized, or does not have the correct fall, or is too long can result in the drain back system not operating effectively.

INSTALLATION – SOLAR COLLECTORS

Maximum Height To Collectors

The solar collectors must be the highest point of the system. The maximum height of the solar installation, from the base of the solar storage tank to the top of the solar collectors, is 9 m. The pump supplied will not circulate closed circuit fluid through heights greater than 9 m and solar gain will not be achieved.

For heights greater than 9 m, an auxiliary pump (kit PN 299914) must be installed above and within 1 m of the solar storage tank. The installation of an auxiliary pump will enable a maximum height of 18 m to be achieved. Refer to "Auxiliary Pump" on page 49.



NOTES:

- PIPE WORK MUST HAVE A CONTINUOUS FALL OF NOT LESS THAN 5° (1 IN 10 GRADE).
- PIPE WORK MUST BE OF HARD DRAWN DN15 COPPER TUBE.
- INSTALL HOT SENSOR LEAD WITH INSULATED SOLAR PIPES DURING CONSTRUCTION FOR NEW HOMES.

Closed Circuit Drain Back Solar Pipe Work Installation Requirements

INSTALLATION – SOLAR COLLECTORS

WARNING: Plumber – Be Aware

- The solar hot and solar cold pipes between the solar storage tank and the solar collectors **MUST BE** of copper and fully insulated with closed cell polymer insulation or similar (minimum thickness 13 mm). Thicker insulation may be required to comply with the requirements of AS/NZS 3500.4. The insulation must be weatherproof and UV resistant if exposed. All compression fittings must use brass or copper olives.

  The insulation will offer corrosion protection to a metal roof against water runoff over the copper pipe, assist in avoiding accidental contact with the solar pipe work and also reduce pipe heat losses.

- The insulation must be **fitted up to the connections on both the solar collectors and the solar storage tank**, as very high temperature closed circuit fluid can flow from the solar collectors to the solar storage tank under certain conditions.

- Plastic pipe **MUST NOT** be used, as it will not withstand the temperature of the closed circuit fluid generated by the solar collectors under stagnation conditions. The solar collectors can generate extremely high closed circuit fluid temperatures up to 150°C. Plastic pipe cannot withstand these temperatures and **MUST NOT** be used. Failure of plastic pipe can lead to the release of high temperature closed circuit fluid and cause severe water damage and flooding.

- There **must be a continuous fall** in the pipe work between the solar collectors and solar storage tank for efficient and effective drain back to occur. The highest point of the solar cold pipe and solar hot pipe must be where they connect to the solar collectors.

CONNECTIONS – PLUMBING

CONNECTION SIZES

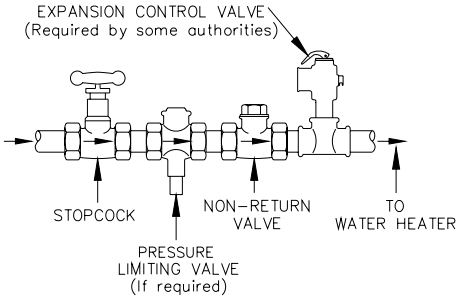
- Hot water connection: RP¾/20.
- Cold water connection: RP¾/20.
- Solar hot (from collector) connection: DN15 compression fitting.
- Solar cold (to collector) connection: DN15 compression fitting.
- Temperature Pressure Relief valve connection: RP½/15.
- Solar circuit pressure relief valve connection: R½/15

All plumbing work must be carried out by a qualified person and in accordance with the National Plumbing Standard AS/NZS 3500.4 and local authority requirements.

WATER INLET AND OUTLET

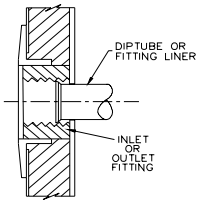
All pipe work must be cleared of foreign matter before connection and purged before attempting to operate the water heater. All olive compression fittings must use brass or copper olives. Use thread sealing tape or approved thread sealant on all fittings.

An isolation valve and non return valve must be installed on the cold water line to the water heater. An acceptable arrangement is shown in the diagram. Refer also to "Hot Water Delivery" on page 25 and to "Mains Water Supply" on page 23.The solar hot and solar cold pipe connections are shown on page 40.



A disconnection union must always be provided at the cold water inlet and hot water outlet on the water heater to allow for disconnection of the water heater.

This solar storage tank has either a plastic dip tube or fitting liner in the inlet and outlet fittings (see diagram). These must be in place for the water heater to function properly. Do not remove or damage them by using heat nearby. They will be pushed into the correct position as the fitting is screwed in.



CONNECTIONS – PLUMBING

PIPE SIZES

To achieve true mains pressure operation, the cold water line to the water heater should be the same size or bigger than the hot water line from the water heater.

The pipe sizing for hot water supply systems should be carried out by persons competent to do so, choosing the most suitable pipe size for each individual application. Reference to the technical specifications of the water heater and local regulatory authority requirements must be made.

RELIEF VALVE

The temperature pressure relief valve is shipped behind the lower front cover of the water heater. The temperature pressure relief valve must be fitted before the water heater is operated. Before fitting the relief valve, make sure the probe has not been bent. Seal the thread with Teflon tape - never hemp. Make sure the tape does not hang over the end of the thread.

Screw the valve into the correct opening (refer to the installation diagram on page 30) leaving the valve outlet pointing downwards. Do not use a wrench on the valve body - use the spanner flats provided.

RELIEF VALVE DRAIN

Temperature Pressure Relief Valve

A copper drain line must be fitted to the relief valve to carry the discharge clear of the water heater. Connect the drain line to the relief valve using a disconnection union. The pipe work from the relief valve to the drain should be as short as possible and fall all the way from the water heater with no restrictions. It should have no more than three right angle bends in it. Use DN15 pipe.

The outlet of the drain line must be in such a position that flow out of the pipe can be easily seen (refer to AS/NZS 3500.4) - but arranged so hot water discharge will not cause injury, damage or nuisance. The drain line must discharge at an outlet or air break not more than 9 metres from the relief valve.

In locations where water pipes are prone to freezing, the drain line must be insulated and not exceed 300 mm in length. In this instance, the drain line is to discharge into a tundish through an air gap of between 75 mm and 150 mm.

⚠ **Warning:** As the function of the temperature pressure relief valve on this water heater is to discharge high temperature water under certain conditions, it is strongly recommended the pipe work downstream of the relief valve be capable of carrying water exceeding 93°C. Failure to observe this precaution may result in damage to pipe work and property.

CONNECTIONS – PLUMBING

Solar Circuit Relief Valve
Ensure the outlet of the solar circuit relief valve is facing toward the rear of the water heater installation. A copper drain line must be fitted to the relief valve to carry the discharge clear of the water heater. Connect the drain line to the relief valve using a compression nut and brass or copper olive. The pipe work from the relief valve to the drain should be as short as possible and fall all the way from the water heater with no restrictions. It should have no more than three right angle bends in it. Use DN15 pipe.

The outlet of the drain line must be in such a position that flow out of the pipe can be easily seen (refer to AS/NZS 3500.4) - but arranged so hot water discharge will not cause injury, damage or nuisance. The drain line must discharge at an outlet or air break not more than 9 metres from the relief valve.

In locations where water pipes are prone to freezing, the drain line must be insulated and not exceed 300 mm in length. In this instance, the drain line is to discharge into a tundish through an air gap of between 75 mm and 150 mm.

EXPANSION CONTROL VALVE
Local regulations may make it mandatory to install an expansion control valve (ECV) in the cold water line to the water heater. In other areas, an ECV is not required unless the saturation index is greater than +0.4 (refer to "Water Supplies" on page 76). However, an ECV may be needed in a corrosive water area where there are sufficient quantities of silica dissolved in the water.

The expansion control valve must always be installed after the non return valve and be the last valve installed prior to the water heater (refer to diagram on page 36). A copper drain line must be run separately from the drain of the relief valve.

CONNECTIONS – PLUMBING

SOLAR INLET AND OUTLET

All pipe work must be cleared of foreign matter before connection and purged before attempting to operate the water heater. All olive compression fittings must use brass or copper olives. Use thread sealing tape or approved thread sealant on all fittings.

The solar cold outlet and solar hot inlet connections are located at the top of the solar storage tank.

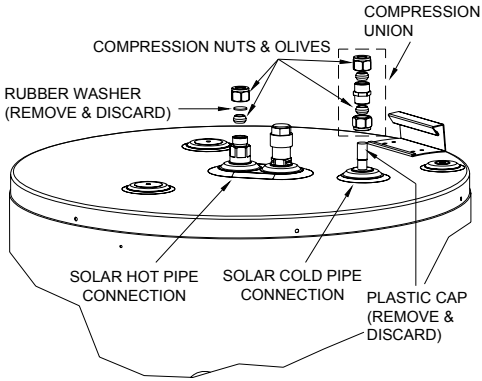
Notes:

- It is important not to cross connect the solar cold and solar hot pipes to the incorrect connections.
    - The solar cold pipe connects to the bottom of the solar collectors and the solar hot pipe connects to the top of the solar collectors on the opposite side to both the solar cold pipe connection and the hot sensor connection.
    - The solar hot inlet connection is located in the centre of the top of the solar storage tank (the connection is marked by a label on top of the storage tank).
    - The solar cold outlet connection is located toward the outer edge of the top of the solar storage tank (the connection is marked by a label on top of the storage tank).
- Connect the solar pipes to the solar storage tank using only the fittings supplied.

CONNECTIONS – PLUMBING

To connect the solar cold and solar hot pipes to the solar storage tank:

- Remove the compression nut and olive from the solar hot inlet fitting at the top of the solar storage tank. Remove the rubber washer from the union and discard.
- Remove the plastic cap from the solar cold outlet pipe end at the top of the solar storage tank.
- Fit the compression union supplied to the solar cold outlet pipe end.


COMPRESSION UNION
COMPRESSION NUTS & OLIVES
RUBBER WASHER (REMOVE & DISCARD)
SOLAR HOT PIPE CONNECTION
SOLAR COLD PIPE CONNECTION
PLASTIC CAP (REMOVE & DISCARD)

- Connect the solar cold pipe (flow to the collector) to the nipple in the solar cold outlet using the compression nut and olive supplied.
- Connect the solar hot pipe (flow from the collector) to the nipple in the solar hot inlet using the compression nut and olive supplied.

AUXILIARY PUMP

The maximum height of the solar installation from the base of the solar storage tank to the top of the solar collectors is 9 m. The pump supplied with the solar storage tank will not circulate closed circuit fluid through heights greater than 9 m and solar gain will not be achieved.

For heights greater than 9 m, an auxiliary pump (kit PN 299914) must be installed. The installation of an auxiliary pump will enable a maximum height of 18 m to be achieved. Refer to “Auxiliary Pump” on page 49.

CONNECTIONS – ELECTRICAL

The power supply to the water heater must not be switched on until the solar storage tank is filled with water and a satisfactory megger reading is obtained.

MEGGER READING
When a megger test is conducted on this water heater, then the following should be noted.

⚠ **Warning:** This water heater contains electronic equipment and 500 V insulation tests must only be conducted between active and earth and between neutral and earth. An active to neutral test WILL damage the electronics.

An insulation test result of between 100 KΩ and 660 KΩ for this water heater is normal.

Typically the insulation resistance between live and earthed parts of an electrical installation should not be less than 1 MΩ. However AS/NZS 3000:2000 clause 6.3.3.3.2 'Results' states:

"The value of 1 MΩ may be reduced to:

- 0.01 MΩ for sheathed heating elements or appliances; or
- a value permitted in the Standard applicable to electrical equipment."

This model water heater is categorised as a 'stationary class 1 motor operated appliance' and has been tested to AS/NZS 3350.1:2002 clause 16 'Leakage current and electric strength' and has passed the requirements of this Standard. Therefore, this model water heater complies with the condition stated in AS/NZS 3000:2000 clause 6.3.3.3.2 (b).

CONNECTIONS – ELECTRICAL

ELECTRICAL CONNECTION

All electrical work and permanent wiring must be carried out by a qualified person and in accordance with the Wiring Rules AS/NZS 3000 and local authority requirements.

The water heater requires a 240 V AC, 50 Hz mains power supply for operation. The solar storage tank with an electric booster heating unit must be directly connected to a 240 V AC 50 Hz mains power supply with an isolating switch installed at the switchboard. This water heater is a single phase appliance. It is not suitable for separate phase supply to the booster heating unit and solar controls.

A flexible 20 mm conduit is required for the electrical cable to the solar storage tank. The conduit is to be connected to the unit with a 20 mm terminator. Connect the power supply wires directly to the terminal block and earth tab connection, ensuring there are no excess wire loops inside the front cover.

The power consumption of the water heater is:

Component	Power consumption	Comments
Solar controller	3 Watts	Constant load
Solar pump	165 Watts	Maximum load at solar heating cycle start up (for approximately two (2) minutes)
	50 Watts	Average load during the solar heating cycle
Heating unit	2400 or 3600 or 4800 Watts	Load when heating unit is operating

The water heater will only operate on a sine wave at 50 Hz. Devices generating a square wave cannot be used to supply power to the water heater.

The power supply to the booster heating unit can be either a continuous / time of use or an Extended Off-Peak (overnight and day) power supply. An Extended Off-Peak (overnight and day) power supply will provide more financial savings. Discuss the power supply requirements to the booster heating unit with the householder. The power supply to the solar controls must be a continuous power supply.

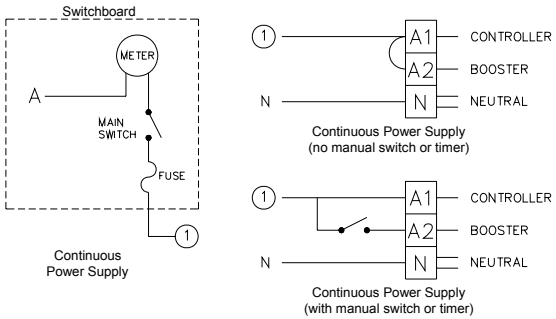
CONNECTIONS – ELECTRICAL

Continuous Power Supply
A single active is required from the switchboard if the solar storage tank is connected to a continuous power supply.

The active from the continuous circuit must be connected to the active terminal marked A1 (marked “Controller” on the wiring diagram) on the terminal block of the solar storage tank.

A wire is supplied bridging the two active terminals marked A1 and A2 (marked “Controller” and “Booster” respectively on the wiring diagram) on the terminal block of the solar storage tank. It is required if the water heater is connected to a continuous power supply and an additional manual isolating switch is not installed in the power supply circuit to the booster heating unit. Refer to the wiring connection diagram on page 43.

If the water heater is connected to a continuous power supply and an additional manual isolating switch is installed, the active to the water heater will need to be looped prior to the switch with the looped active wire bypassing the switch and connecting directly to the active terminal marked A1 (marked “Controller” on the wiring diagram) on the terminal block of the solar storage tank. This supply must remain uninterrupted to allow the solar controls to operate and solar gain to be achieved. The second active wire, which will supply power through the switch, must be connected to the active terminal marked A2 (marked “Booster” on the wiring diagram) on the terminal block of the solar storage tank. Refer to the wiring connection diagram on page 43 and to “Manual Controls” on page 46.



Continuous Power Supply Connection to the Booster Heating Unit

The wire bridging the two active terminals marked A1 and A2 (marked “Controller” and “Booster” respectively on the wiring diagram) on the terminal block is not required and must not be connected if a manual isolating switch is installed.

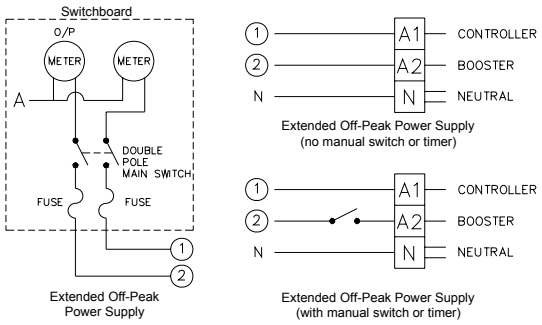
CONNECTIONS – ELECTRICAL

Extended Off-Peak Power Supply
Two actives from two separate circuits are required from the switchboard if the booster heating unit is connected to an Extended Off-Peak power supply. The two circuits must be able to be isolated at the switchboard by a single switch.

The active from the continuous circuit must be connected directly to the active terminal marked A1 (marked “Controller” on the wiring diagram) on the terminal block of the solar storage tank. This supply must remain uninterrupted to allow the solar controls to operate and solar gain to be achieved.

The active wire from the Extended Off-Peak Circuit must be connected to the active terminal marked A2 (marked “Booster” on the wiring diagram) on the terminal block of the solar storage tank. An additional manual isolating switch can be installed in the power supply circuit to the booster heating unit. Refer to the wiring connection diagram on page 44.

If an additional manual isolating switch is installed, it must be on the power supply from the Extended Off-Peak circuit, with the switched active wire connected to the active terminal marked A2 (marked “Booster” on the wiring diagram) on the terminal block of the solar storage tank. Refer to the wiring connection diagram on page 44 and to “Manual Controls” on page 46. The active from the continuous circuit and connected to the active terminal marked A1 (marked “Controller” on the wiring diagram) on the terminal block of the solar storage tank, must not be switched by the additional manual isolating switch.



Extended Off-Peak Power Supply Connection to the Booster Heating Unit

The wire bridging the two active terminals marked A1 and A2 (marked “Controller” and “Booster” respectively on the wiring diagram) on the terminal block is not required and must not be connected if the booster heating unit is connected to an Extended Off-Peak power supply, whether or not an additional isolating switch is installed.

CONNECTIONS – ELECTRICAL

HOT SENSOR LEAD

House the hot sensor lead at the water heater in the flexible conduit provided and secure the conduit in the cut out on the tab located behind the upper front cover. Connect the hot sensor cable to the hot sensor cable connector located on the tab behind the upper front cover. Secure the hot sensor lead to the water heater jacket to prevent possible damage.

THERMOSTAT SETTING

The thermostat is adjustable from 60°C to 70°C. The thermostat is adjusted by turning the adjuster anticlockwise to decrease the temperature setting and clockwise to increase the temperature setting. Only adjust the temperature setting when the isolating switch is switched off at the switchboard.

For reasons of safety and economy, we advise the thermostat be set at the lowest temperature that will provide sufficient hot water during periods when boosting is required. Rheem recommends the thermostat is set at 60°C to maximise solar contribution. Discuss the thermostat setting requirements with the householder.

AUXILIARY PUMP

The auxiliary pump, if installed, must be wired to the control board. Refer to “Auxiliary Pump – Electrical Connection” on page 52.

CONNECTIONS – ELECTRICAL

MANUAL CONTROLS

Rheem recommends an additional manual isolating switch be installed in the power supply circuit to the booster heating unit. This booster switch is to be installed in a convenient location such as the kitchen or laundry and will enable the householder to control the electrical boosting during periods of poor solar gain.

A suitably rated single-pole on / off switch or timer control switch should be used to control a booster heating unit connected to an Extended Off-Peak / time-controlled electricity supply. The timer control switch should be a type which has an internal rechargeable battery to keep time when the power supply is not available to the timer.

A booster heating unit connected to a continuous / time of use electricity supply should be controlled by either a suitably rated single pole on / off switch or "One Shot Control" switch or timer control switch.

Refer to the manufacturer's instructions supplied with the switch for installation details. Discuss the manual switching arrangements with the householder.

The timer control switch should be set to suit the hot water consumption pattern of the household. It is recommended only one or two periods per day, prior to peak hot water consumption periods, be programmed into the timer. Suggested periods, based on a 3.6 kW heating unit, are:

- between 4:30 PM and 6:30 PM (270 model),

  and if a second boost period is required,

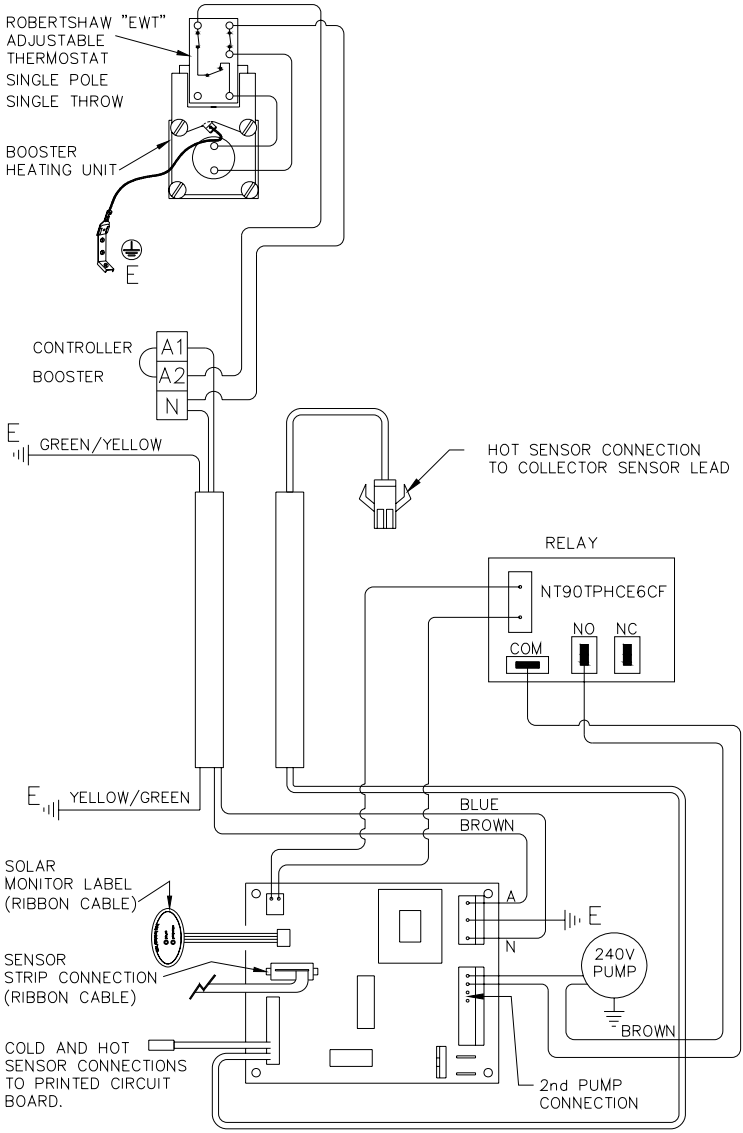
- between 4:30 AM and 6:30 AM (270 model).

This will be sufficient for most installations. If the water heater has a 4.8 kW booster heating unit, these periods could be reduced by 30 minutes with the start time delayed, or a 2.4 kW booster heating unit, extended by 45 minutes with the start time brought forward.

A manual on / off switch can also be installed in between the timer control switch and the water heater. This can be used to provide further control over the boosting of the water temperature.

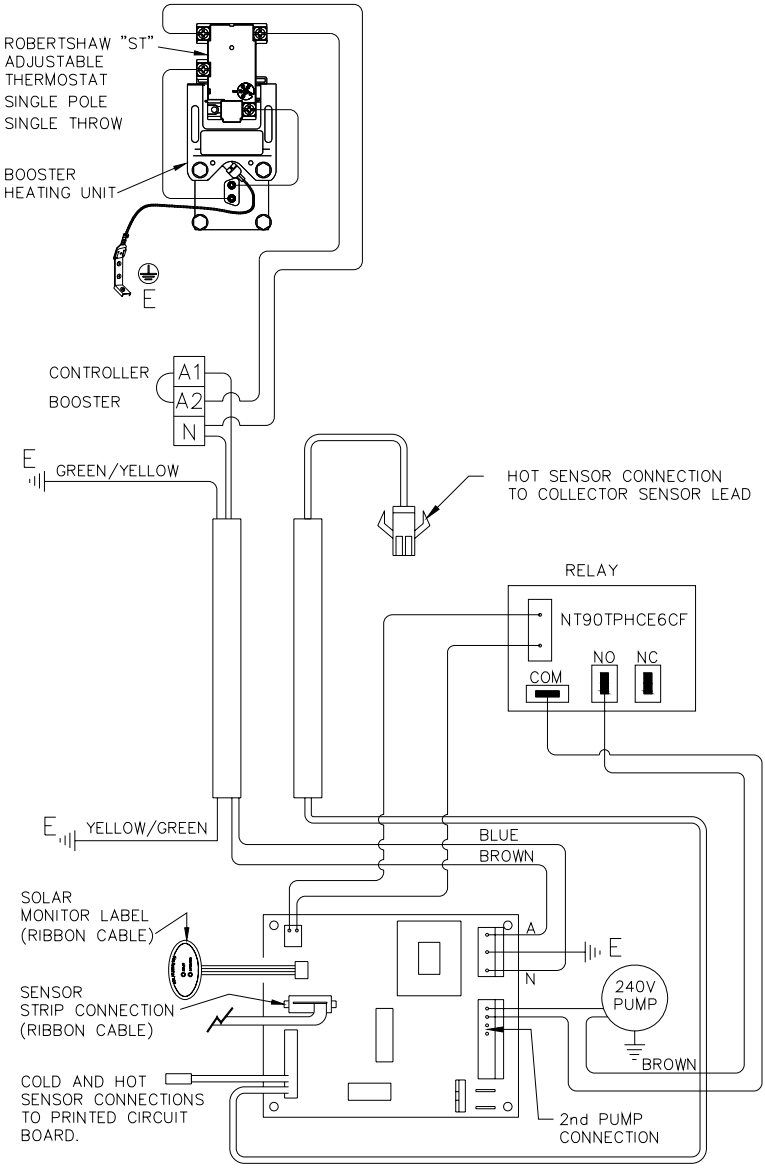
CONNECTIONS – ELECTRICAL

WIRING DIAGRAM



Wiring Diagram Electric Boosted Closed Circuit Solar Water Heater
Robertshaw "EWT" Thermostat

CONNECTIONS – ELECTRICAL



Wiring Diagram Electric Boosted Closed Circuit Solar Water Heater
Robertshaw "ST" Thermostat

AUXILIARY PUMP

The solar collectors must be the highest point of the system. The maximum height of the solar installation from the base of the solar storage tank to the top of the solar collectors is 9 m. The pump supplied with the solar storage tank will not circulate closed circuit fluid through heights greater than 9 m and solar gain will not be achieved.

For heights greater than 9 m, an auxiliary pump (kit PN 299914) must be installed above and within 1 m of the solar storage tank. The installation of an auxiliary pump will enable a maximum height of 18 m to be achieved. The auxiliary pump is the same model pump as supplied with the solar storage tank.

Note: The installation of an auxiliary pump does not allow for an increase in total pipe length of the system. The maximum pipe lengths must be observed (refer to "Pipe Lengths" on page 33).

Part No	Kit Contents and Description Kit 2nd Pump Assembly Drain Back	299914
121994	installation instructions auxiliary pump	1
299998	pump Salmson HXL63-15P RU15/21 Union	1
108381	bracket pump wall mount	1
108380	cover pump wall mount	1
080031	screw phillips pan head no 8 x 13	4
088063	union fitting assembly ½" x ½" male (includes union ½" x ½" male, copper olive, compression nut)	2
080138	cable tie black 200 mm long	10
	cable tie mount adhesive backed 4 way	4

AUXILIARY PUMP

AUXILIARY PUMP – PLUMBING CONNECTIONS

The auxiliary pump is to be installed:

- on the solar cold pipe from the solar storage tank to the solar collectors.

  Refer to the label on top of the storage tank to identify the solar cold pipe. The solar cold pipe connection is located toward the outer edge of the top of the solar storage tank.

- within 1 m of the top of the solar storage tank.
- with the inlet and outlet in a vertical orientation.

  Note: The arrows on the rear face of the pump indicate the direction of flow and should be pointing upwards when the pump is in the installed position.

- with the mounting bracket securely fixed to a structure, such as a wall, with suitable screws or anchors.
- wired to the control board and earth connector strip (refer to “Auxiliary Pump – Electrical Connection” on page 52).
- with the speed setting set on 3.

  This speed setting must not be adjusted. The solar control unit automatically controls and adjusts the speed of the pump to maximise solar contribution. Manual adjustment of the speed dial setting may result in the system not operating correctly or efficiently.

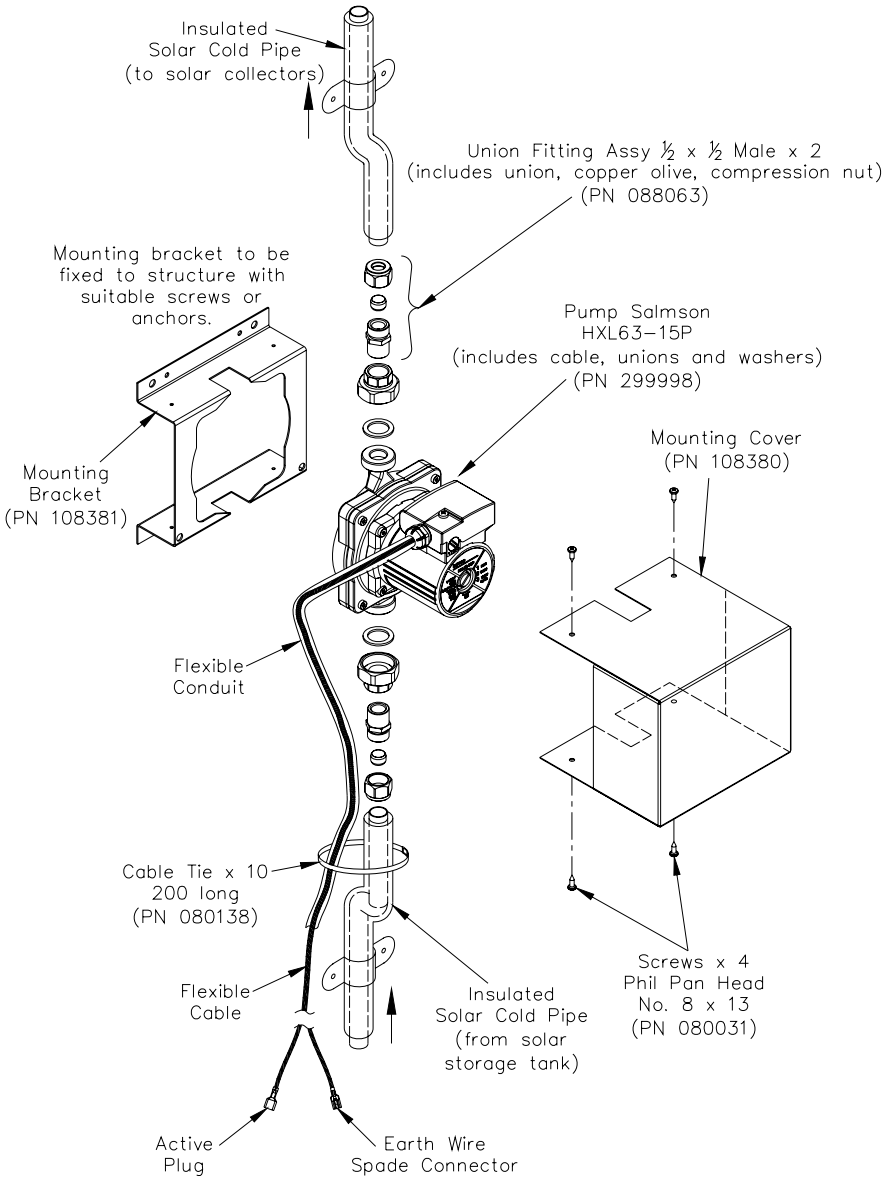
- enclosed within the mounting cover provided in the kit to protect it from rain as the pump is not weatherproof.

  The mounting cover is to be secured to the mounting bracket with the screws provided.

- with the insulation on the solar cold pipe **fitted up to the connections of the auxiliary pump**, as very high temperature closed circuit fluid can flow from the solar collectors to the solar storage tank under certain conditions.

Refer to the installation diagram on page 51.

AUXILIARY PUMP



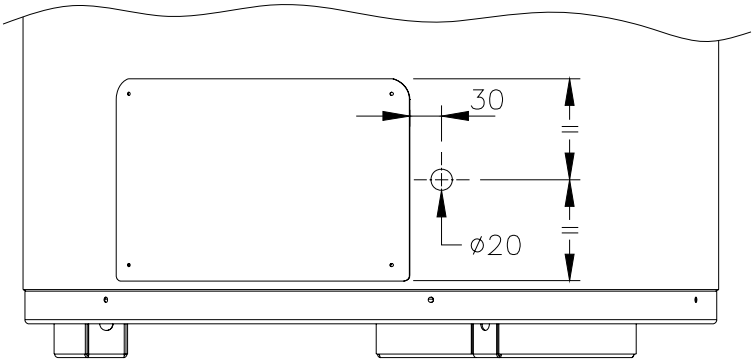
Auxiliary Pump Typical Installation

AUXILIARY PUMP

AUXILIARY PUMP – ELECTRICAL CONNECTION

The auxiliary pump, if installed, must be wired to the control board. The flexible cord supplied with the pump must be housed in a 20 mm flexible conduit. The flexible conduit should be secured to the insulated pipe work with the cable ties provided, to the side of the solar storage tank using the adhesive backed cable tie mounts and cable ties provided and to the penetration in the solar storage tank jacket using the cable gland provided.

It is necessary to make a penetration in the jacket of the solar storage tank, 30 mm to the right of and aligned with the mid height point of the lower front cover, to accommodate the flexible cable and conduit. The penetration, 20 mm in diameter, can be made using a hole saw, suitable for cutting through 0.5 mm thick Colorbond. The edge of the penetration is to be smoothed off after forming to ensure there are no sharp edges. Refer to the diagram for position.



Auxiliary Pump Wiring Connection Jacket Penetration

⚠ **Warning:** The removal of the lower front cover will expose 240 V wiring. Switch off the electrical supply at the isolating switch to the water heater before removing the lower front cover and if necessary disconnecting the ribbon cable from the solar control module.

Connect the active plug from the auxiliary pump to the terminals marked “PUMP 2” on the control board (refer to “Wiring Diagram” on page 47) and the earth wire spade connector from the auxiliary pump to a terminal on the earth connector strip located on the bracket adjacent to the control board.

AUXILIARY PUMP

The solar monitor located on the lower front cover is connected to the solar control module by a ribbon cable. The ribbon cable has sufficient length to enable the removal of the lower front cover and for it to be set to one side of the opening without disconnecting the ribbon cable from the solar control module. The ribbon cable can be disconnected from the solar control module if it is necessary to remove the lower front cover completely from the work area in front of the solar storage tank.

If the ribbon cable from the solar monitor has been disconnected, reconnect it to the solar control module prior to replacing the lower front cover.

Note: Care should be taken when reconnecting the ribbon cable to the solar control module to ensure the side of the connecting plug with the yellow label is **facing toward** the front cover opening. The connecting plug is non polarised and if it is connected with the side of the connecting plug with the yellow label facing away from the front cover opening, the functions of the green and red LEDs will be reversed. This will result in the red LED flashing instead of the green LED at solar pump start up.

COMMISSIONING

TO FILL AND TURN ON THE WATER HEATER

The power supply to the water heater must not be switched on until the solar storage tank is filled with water.

- Open all of the hot water taps in the house (don't forget the shower).
- Open the cold water isolation valve fully on the cold water line to the water heater.

  Air will be forced out of the taps.
- Close each tap as water flows freely from it.
- Check the pipe work for leaks.
- Open the isolation valve in the pipe work between the outlet of the heat exchanger and the solar pump, located behind the lower front cover of the solar storage tank (refer to step 4 of "Commissioning the Solar Circuit" on page 58).
- Commission the solar circuit (refer to "Solar Circuit" on page 55).
- Switch on the electrical supply at the isolating switch to the water heater.

  The isolating switch must be switched on for the solar controls to operate and solar gain to be achieved.

Explain to the householder or a responsible officer the functions and operation of the solar water heater. Upon completion of the installation and commissioning of the water heater, leave this guide with the householder or responsible officer.

COMMISSIONING

SOLAR CIRCUIT

It is necessary to commission and check the operation of the solar circuit. The commissioning procedure includes:

- checking the circulation of closed circuit fluid through the solar circuit.
- checking the drain back function of the solar circuit.
- pressure testing the solar circuit to ensure there are no leaks.
- checking the level of the closed circuit fluid and adjusting if required.

The water heater is supplied charged with closed circuit fluid. The level of the closed circuit fluid only needs to be checked if:

- a third solar collector is installed.
- there is a significant leak in the solar pipe work and closed circuit fluid has been discharged.
- the maximum recommended solar pipe length is exceeded.
- a second solar pump is installed if the maximum height from the base of the solar storage tank to the top of the solar collectors exceeds 9 m (refer to "Pipe Lengths" on page 33).

Additional Equipment

Additional equipment will be required for the commissioning and checking of the solar circuit. This includes checking the closed circuit fluid level and conducting a drain back test. The following equipment is required:

- a 1500 mm long x 12 mm (½") diameter clear hose (closed circuit fluid level hose).
- one (1) ½" hose clamp.
- a suitable plug for one end of the hose.
- suitable tape to affix the hose to the side of the solar storage tank.
- a torch to illuminate the working area under the heat exchanger and storage tank cylinder.
- a non-permanent marker.

COMMISSIONING

Closed Circuit Fluid

The water heater is supplied charged with closed circuit fluid and it is not necessary to add further closed circuit fluid to the system. If the closed circuit fluid has been completely drained or discharged from the solar circuit and needs to be replaced, then the amount to be added is:

- 4.5 litres of concentrate, mixed with
- 11.5 litres of water.

It is necessary to undertake the solar circuit commissioning procedure if the closed circuit fluid has been replaced.

The closed circuit fluid contains food grade additives (rust inhibitor, anti-freeze agent, colour) and is harmless to the environment. However, it is good practice to recover any excess closed circuit fluid and remove from site for appropriate disposal.

⚠ **Warning:** Although non-toxic, the following first aid advice and procedures should be followed if the closed circuit fluid concentrate comes into human contact or is spilt:

- Swallowed - give milk or water and seek medical attention.
- Eyes - wash with running water.
- Skin - remove contaminated clothing and wash skin with water and soap.
- Inhaled - seek fresh air, rest and keep warm.
- Spilt - immediately remove contaminated clothing, stop leak source, absorb with a dry agent and eliminate any ignition sources nearby.

COMMISSIONING

⚠ PRE-COMMISSIONING WARNINGS

- It is recommended to conduct the solar circuit commissioning procedure with the solar collectors covered, otherwise during the commissioning and checking procedure of the solar circuit, the closed circuit fluid may experience solar gain as it passes through the solar collectors. This will increase both the temperature and pressure of the closed circuit fluid and vapour inside of the solar circuit.
- The electrical supply must be switched off before the solar circuit is opened either at the solar circuit relief valve or at the compression nut on either of the solar hot or solar cold pipes at the top of the solar storage tank.
- If it is necessary to open the solar circuit at the solar circuit relief valve or at the compression nut on either of the solar hot or solar cold pipes at the top of the solar storage tank, then care must be taken so as not to be scalded by either the closed circuit fluid or the vapour escaping from the solar circuit.

Pre-Commissioning Notes

- Before commencing the solar circuit commissioning procedure, check the solar cold and solar hot pipe work to ensure:
  - there is a continuous fall from the solar collectors to the solar storage tank of a minimum 5° (1 in 10 grade).
  - the maximum recommended pipe length is not exceeded.
  - the maximum height from the base of the solar storage tank to the solar collector is not exceeded.

    Rectify the solar pipe work if there is either insufficient fall or not a continuous fall of at least 5° from the solar collectors to the solar storage tank or if either of the maximum pipe length or maximum height of the system has been exceeded, before commencing the solar circuit commissioning procedure. Refer to “Pipe Lengths” on page 33.
- The solar collectors will gain a high level of heat during periods of solar radiation. If the solar pump is activated during a period of high solar radiation and the solar collectors have not been covered, the initial flow of closed circuit fluid will absorb this heat and a rumbling sound may be heard. This is normal and the solar circuit will achieve a stable operating condition once full flow through the solar circuit is established.
- The solar pump is set on the speed setting 3. This speed setting must not be adjusted. The solar control unit automatically controls and adjusts the speed of the pump to maximise solar contribution. Manual adjustment of the speed dial setting may result in the system not operating correctly or efficiently.

COMMISSIONING

Commissioning the Solar Circuit
To commission and check the solar circuit:

1. Switch off the electrical supply at the isolating switch to the solar storage tank.

   If the pump has been operating, wait five minutes to allow the drain back of the closed circuit fluid in the solar circuit.

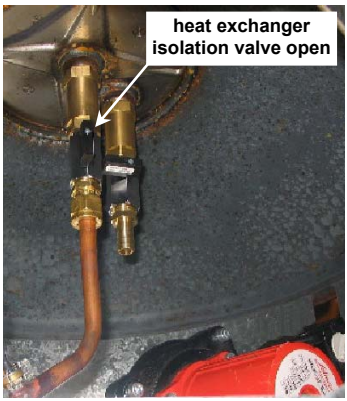
2. Cover the solar collectors with an opaque material to prevent solar gain during the commissioning process.

3. Remove the lower and upper front covers from the solar storage tank.

   The solar monitor located on the lower front cover is connected to the solar control module by a ribbon cable. The ribbon cable has sufficient length to enable the removal of the lower front cover and for it to be set to one side of the opening without disconnecting the ribbon cable from the solar control module.

   The ribbon cable can be disconnected from the solar control module if it is necessary to remove the lower front cover completely from the work area in front of the solar storage tank.

4. Ensure the isolation valve in the pipe work between the outlet of the heat exchanger and the solar pump, located behind the lower front cover of the solar storage tank, is fully open.



Attach Closed Circuit Fluid Level Hose

5. Attach the clear hose to the solar circuit.

   To attach the hose:

   - Ensure the heat exchanger drain valve is closed.

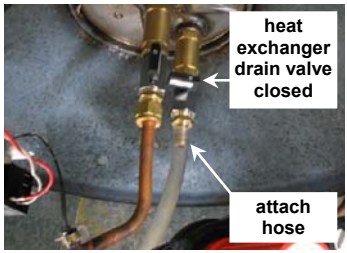
     The heat exchanger drain valve is located adjacent to the solar pump, behind the lower front cover of the solar storage tank.

   - Attach one end of the hose to the hose tail connection.

     It may be necessary to secure the hose with a hose clamp.

   - Plug the free end of the hose.

   - Affix the hose securely in a vertical orientation to the front of the solar storage tank using tape, adjacent to the text, “MINIMUM FLUID LEVEL WITH PUMP OPERATING”.

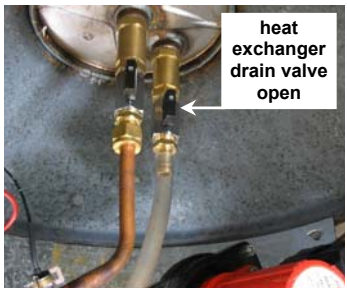


6. Disconnect the drain line from the solar circuit relief valve at the top of the solar storage tank. Remove the spring clip from the solar circuit relief valve and remove the valve.

   ⚠ **Warning:** The solar circuit may be under pressure. Take care when removing the solar circuit relief valve, as a sudden discharge of pressurised hot vapour may be experienced. This discharge will create a sharp sound of vapour being released.

7. Open the heat exchanger drain valve and remove the plug from the end of the hose.

   The closed circuit fluid will flood the hose to the static level of the closed circuit fluid inside of the heat exchanger.

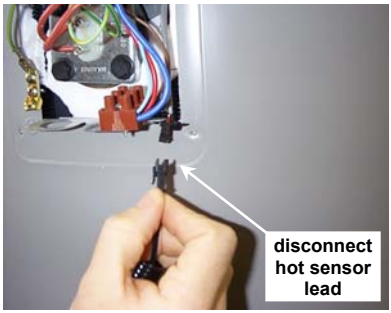


8. Mark the static level of the closed circuit fluid on the side of the solar storage tank with a non permanent marker.

Solar Circuit Circulation

9. Disconnect the hot sensor lead from the connecting plug located on the tab in the upper front cover opening.

   It is important, at the end of this procedure when the commissioning and checking of the solar circuit is complete, to reconnect the hot sensor lead, otherwise when the electrical supply is switched on, the solar pump will deactivate after one hour and the solar control unit will then enter a fault mode and no solar gain will be achieved.



10. Switch on the electrical supply at the isolating switch to the solar storage tank.

    ⚠ **Warning:** Take care not to enter the area inside the solar storage tank behind the front covers whilst the power is on as the electrical circuit will be live.

    The red LED on the solar monitor label will start flashing.

    The pump will activate and commence pumping closed circuit fluid around the solar circuit.

    The level of the closed circuit fluid in the clear hose will slowly drop to the dynamic operating level.

    Allow the pump to operate for three (3) minutes (one and two collector systems) or for five (5) minutes (3 collector system) to allow the solar circuit to fill with closed circuit fluid and stabilise.

    Note: The solar pump will operate for one hour with the hot sensor lead disconnected, before automatically turning itself off (refer to step 13).

11. Check the closed circuit fluid is circulating around the solar circuit.

    To check circulation:

    - Listen for the trickling sound of the closed circuit fluid returning into the heat exchanger by placing your ear against the side toward the top of the solar storage tank.

      If the fluid is circulating around the solar circuit, a trickling sound will be heard as the fluid returns back into the heat exchanger.

      If no trickling sound is heard, check:

      - the hot sensor lead is disconnected at the solar storage tank.

        If connected, disconnect the hot sensor lead at the solar storage tank (refer to step 9).

      - the isolation valve in the pipe work between the outlet of the heat exchanger and the solar pump, located behind the lower front cover of the solar storage tank, is fully open.

        ⚠ **Warning:** Switch off the electrical supply at the isolating switch to the solar storage tank before entering the area inside the solar storage tank behind the front cover.

        If closed, open the isolation valve on the outlet of the heat exchanger (refer to step 4).

      - there is no leakage from the solar circuit. It is important to check all of the solar circuit pipe work, including in the roof space and on the roof.

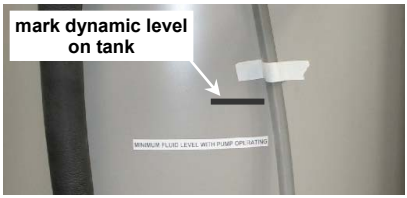
        If leaking, rectify any leaks in the solar circuit.

      - the height from the base of the storage tank to the top of the collectors has not exceeded the maximum allowable height.

      - the length of solar cold and solar hot pipe has not exceeded the maximum recommended pipe length.

        If the maximum allowable height or the maximum recommended pipe length has been exceeded, it may be necessary to relocate the solar collectors to either a lower level or closer to the solar storage tank, or install a second solar pump, or relocate the solar storage tank closer to the solar collectors. Refer to “Pipe Lengths” on page 33.

12. Mark the dynamic level of the closed circuit fluid in the hose on the side of the solar storage tank with a non permanent marker when satisfied the solar circuit circulation is operating satisfactorily.



13. If the procedure to check the solar circuit circulation is not complete before the pump has automatically turned off, then:
    - switch off the electrical supply at the isolating switch to the solar storage tank.
    - wait one (1) minute for the operating system to reset to its commissioning sequence, otherwise the pump may not operate when the power supply is switched on.
    - recommence this procedure from step 10.

Drain Back Function

14. Switch off the electrical supply at the isolating switch to the solar storage tank.

    The red LED on the solar monitor label will stop flashing.

    The pump will deactivate.

    The closed circuit fluid will drain back down to the heat exchanger and the level of the closed circuit fluid in the clear hose will rise.

    Wait five (5) minutes to allow the drain back of the closed circuit fluid in the solar circuit.

15. Note the level of the closed circuit fluid in the fluid level hose.

    The closed circuit fluid should drain back to the original static level.

    If the closed circuit fluid does not drain back completely to this level, then check:

    - there is a continuous fall of at least 5° (1 in 10 grade) in the solar pipe work from the solar collectors to the solar storage tank.
    - the solar collectors have an inclination of not less than 10°.

      (refer to "Solar Collector Location" on page 31)
    - the connectors on the inlet and outlet of the collectors are orientated downwards to ensure complete drain back of the closed circuit fluid from the solar collectors.

    If necessary, rectify the:

    - solar pipe work if there is either insufficient fall or not a continuous fall in the pipe work.
    - solar collector inclination if it is less than 10°.
    - orientation of the connectors downwards if they are not orientated correctly.

    Recheck the drain back function of the solar circuit by repeating step 8 and recommencing this procedure from step 10.

Closed Circuit Fluid Level

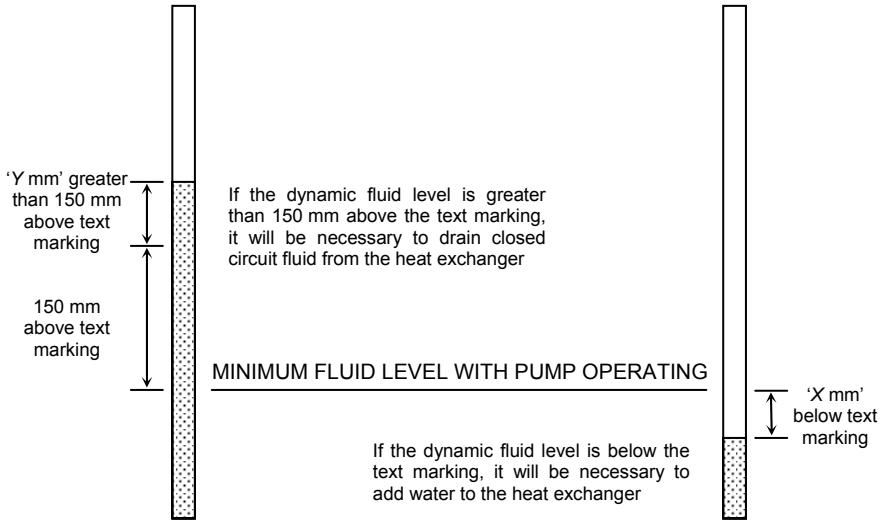
16. Measure the distance from the text marking “MINIMUM FLUID LEVEL WITH PUMP OPERATING” to the closed circuit fluid dynamic level marked on the side of the solar storage tank during step 12.

    The correct closed circuit fluid dynamic level for efficient operation of the system when the pump is operating is between the “MINIMUM FLUID LEVEL WITH PUMP OPERATING” text marking on the side of the solar storage tank and 150 mm above this mark.

    - If the closed circuit fluid dynamic level marked on the side of the solar storage tank during step 12 is greater than 150 mm above the text marking, it will be necessary to drain closed circuit fluid from the heat exchanger.
    - If the closed circuit fluid dynamic level is below the text marking, it will be necessary to add water to the heat exchanger to top up the level of closed circuit fluid.

      There is sufficient closed circuit fluid concentrate in the solar circuit heat exchanger such that only water needs to be added to the system if it is required to top up the level of closed circuit fluid.

    Note: The dynamic level of the closed circuit fluid, upon the completion of commissioning, must not be less than the “MINIMUM FLUID LEVEL WITH PUMP OPERATING” text marking on the side of the solar storage tank or greater than 150 mm above this mark.


‘Y mm’ greater than 150 mm above text marking
150 mm above text marking
If the dynamic fluid level is greater than 150 mm above the text marking, it will be necessary to drain closed circuit fluid from the heat exchanger
MINIMUM FLUID LEVEL WITH PUMP OPERATING
‘X mm’ below text marking
If the dynamic fluid level is below the text marking, it will be necessary to add water to the heat exchanger

17. Determine the correct amount of water to be added to or closed circuit fluid to be drained from the heat exchanger if the dynamic level is either below the text marking “MINIMUM FLUID LEVEL WITH PUMP OPERATING” or more than 150 mm above this mark.

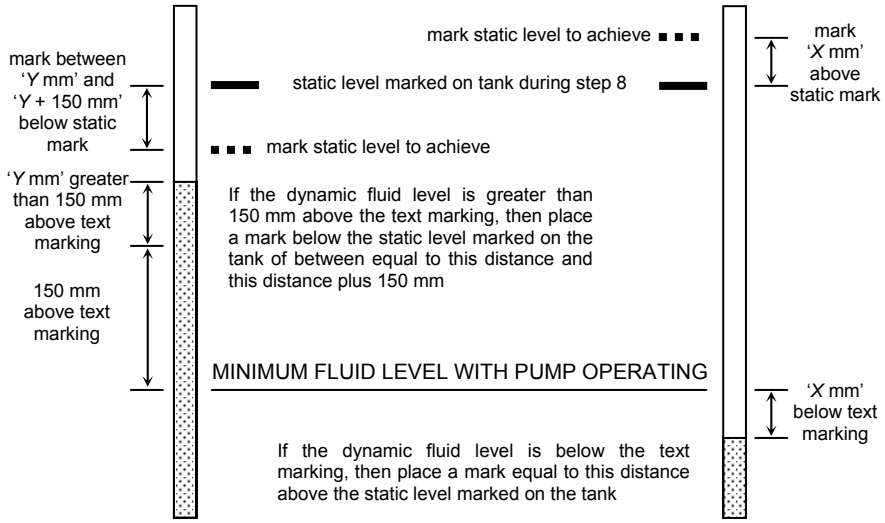
    Each 100 mm of fluid level height is equivalent to three (3) litres of closed circuit fluid.

20 mm	0.6 litres	80 mm	2.4 litres	140 mm	4.2 litres
40 mm	1.2 litres	100 mm	3.0 litres	160 mm	4.8 litres
60 mm	1.8 litres	120 mm	3.6 litres	180 mm	5.4 litres

- Mark the required closed circuit fluid level to be obtained on the side of the solar storage tank with a non permanent marker beside the clear hose, in relation to the static level marked on the side of the solar storage tank during step 8.

  Eg: If the dynamic level is 30 mm below the text marking, then place a mark 30 mm above the static level marked on the side of the solar storage tank in step 8. It would be necessary to add one litre of water to the heat exchanger.

  Eg: If the dynamic level is 180 mm above the text marking, then place a mark at least 30 mm, but no more than 180 mm, below the static level marked on the side of the solar storage tank. It would be necessary to drain between one litre and five litres of closed circuit fluid from the heat exchanger.


mark between ‘Y mm’ and ‘Y + 150 mm’ below static mark
‘Y mm’ greater than 150 mm above text marking
150 mm above text marking
mark static level to achieve
static level marked on tank during step 8
mark static level to achieve
If the dynamic fluid level is greater than 150 mm above the text marking, then place a mark below the static level marked on the tank of between equal to this distance and this distance plus 150 mm
MINIMUM FLUID LEVEL WITH PUMP OPERATING
If the dynamic fluid level is below the text marking, then place a mark equal to this distance above the static level marked on the tank
mark ‘X mm’ above static mark
‘X mm’ below text marking

18. Add water to top up the level of the closed circuit fluid in the heat exchanger if required.

    To add water to the closed circuit fluid:

    - If not already removed, disconnect the drain line and remove the spring clip from the solar circuit relief valve at the top of the solar storage tank and remove the valve (refer to step 6).

      ⚠ **Warning:** The solar circuit may be under pressure. Take care when removing the solar circuit relief valve, as a sudden discharge of pressurised hot vapour may be experienced. This discharge will create a sharp sound of vapour being released.

    - Place a funnel in the relief valve fitting.
    - Add water slowly through the funnel until the level of fluid in the hose is at the desired level as marked on the solar storage tank.

      Note: It may be necessary to undo the compression nut on the solar hot pipe at the top of the solar storage tank and loosen the pipe work from the fitting to assist the flow of water into the closed circuit through the funnel.

    - Remove the funnel from the relief valve fitting.
    - Position the solar hot pipe correctly in its fitting and tighten the compression nut if this has been loosened.

19. Drain closed circuit fluid from the heat exchanger if required.

    To drain closed circuit fluid:

    - If not already removed, disconnect the drain line and remove the spring clip from the solar circuit relief valve at the top of the solar storage tank and remove the valve (refer to step 6).

      ⚠ **Warning:** The solar circuit may be under pressure. Take care when removing the solar circuit relief valve, as a sudden discharge of pressurised hot vapour may be experienced. This discharge will create a sharp sound of vapour being released.

    - Place the end of the solar fluid hose into a graduated volumetric container and drain closed circuit fluid until the level of fluid in the hose is at the desired level as marked on the solar storage tank.

      It may be necessary to drain off the closed circuit fluid in small amounts, raising the hose back to the top of the solar storage tank and noting the level of the closed circuit fluid in the clear hose each time, so as not to drain below the desired level.

      Note: The closed circuit fluid contains food grade additives (rust inhibitor, anti-freeze agent, colour) and is harmless to the environment. However, it is good practice to recover any excess fluid and remove from site for appropriate disposal.

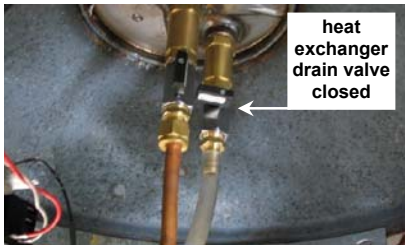
    - Re-affix the hose to the same location on the side of the solar storage tank.

20. If water has been added to or closed circuit fluid has been drained from the heat exchanger, recommence this procedure from step 10.

COMMISSIONING

Pressure Testing the Solar Circuit

21. Close the heat exchanger drain valve.
22. Refit the solar circuit relief valve, orientating the valve outlet to the rear of the solar storage tank. Secure with the spring clip. Reconnect the drain pipe to the valve.



23. Switch on the electrical supply at the isolating switch to the solar storage tank.

    ⚠ **Warning:** Take care not to enter the area inside the solar storage tank behind the front covers whilst the power is on as the electrical circuit will be live.

    The red LED on the solar monitor label will start flashing.

    The pump will activate and commence pumping fluid around the solar circuit.

    Note: The level of the closed circuit fluid in the clear hose will not change, as the heat exchanger drain valve has been closed.

    Allow the pump to operate for three (3) minutes (one and two collector systems) or for five (5) minutes (3 collector system) to allow the solar circuit to stabilise and fill with closed circuit fluid.

    Note: The solar pump will operate for one hour with the hot sensor lead disconnected, before automatically turning itself off. Refer to step 25.

24. Check the solar pipe work and collector unions for leaks whilst the pump is operating and the solar circuit is at its working pressure. It is important to check all of the solar circuit pipe work, including in the roof space and on the roof.
25. If the procedure to check the solar pipe work for leaks is not complete before the pump has automatically turned off, then:
    - switch off the electrical supply at the isolating switch to the solar storage tank.
    - wait one (1) minute for the operating system to reset to its commissioning sequence, otherwise the pump may not operate when the power supply is switched on.
    - recommence this procedure from step 23.

26. Switch off the electrical supply at the isolating switch to the solar storage tank.

    The red LED on the solar monitor label will stop flashing.

    The pump will deactivate.

    The closed circuit fluid will drain back down to the heat exchanger.

27. Rectify any leaks in the solar pipe work and collector unions.

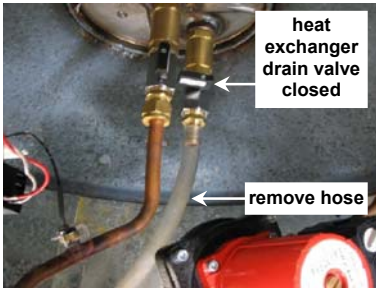
    If brazing is required to fix any leaks, then it is necessary to remove the solar circuit relief valve (refer to step 6).

    ⚠ **Warning:** The solar circuit may be under pressure. Take care when removing the solar circuit relief valve, as a sudden discharge of pressurised hot vapour may be experienced. This discharge will create a sharp sound of vapour being released.

28. If minor leaks have been rectified, recommence this procedure from step 23. If a major leak has been rectified, recommence this procedure from step 6.

Remove Closed Circuit Fluid Level Hose

29. Remove the clear hose from the solar storage tank when satisfied the commissioning procedure is complete. To remove the hose:



- Ensure the heat exchanger drain valve is closed.
- Remove the hose from the side of the storage tank and place the end into a container to collect the closed circuit fluid remaining in the hose.
- Replace the plug into the free end of the hose and lay the hose flat on the ground.
- Loosen the hose clamp, if fitted, and carefully remove the hose and hose clamp from the heat exchanger drain valve fitting, ensuring there is no spillage of the closed circuit fluid.

  Clean up any spillage of closed circuit fluid.
- Place the open end of the hose into the container and recover the remainder of the closed circuit fluid from the hose.

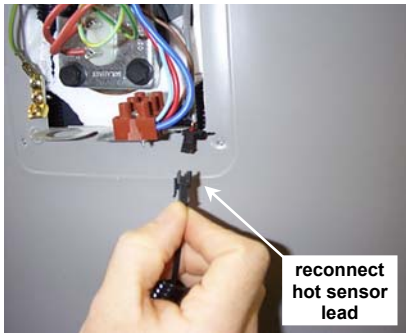
  Note: The closed circuit fluid contains food grade additives (rust inhibitor, anti-freeze agent, colour) and is harmless to the environment. However, it is good practice to recover any excess closed circuit fluid and remove from site for appropriate disposal.

COMMISSIONING

Completing the Commissioning of the Solar Circuit

30. Reconnect the hot sensor lead to the connecting plug located on the tab in the upper front cover opening.

    It is important to reconnect the hot sensor lead, otherwise when the electrical supply is switched on, the solar pump will deactivate after one hour and the solar control unit will then enter a fault mode, will not operate and no solar gain will be achieved.



31. Replace the lower and upper front covers of the solar storage tank.

    - If the ribbon cable from the solar monitor has been disconnected, reconnect it to the solar control module prior to replacing the lower front cover.

      Note: Care should be taken when reconnecting the ribbon cable to the solar control module to ensure the side of the connecting plug with the yellow label is **facing toward** the front cover opening. The connecting plug is non polarised and if it is connected with the side of the connecting plug with the yellow label facing away from the front cover opening, the functions of the green and red LEDs will be reversed. This will result in the red LED flashing instead of the green LED at solar pump start up.

32. Clean off the marks made on the side of the solar storage tank.

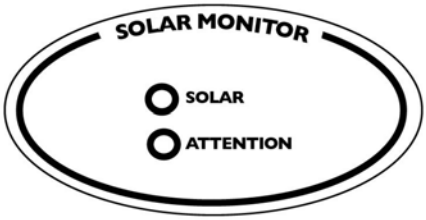
33. Remove the covers from the solar collectors.

34. Switch on the electrical supply at the isolating switch to the solar storage tank.

COMMISSIONING

DIAGNOSTIC FEATURES OF THE SOLAR CONTROLLER

The solar storage tank incorporates a solar monitor which is connected to the solar control module by a ribbon cable. The solar monitor is located on the lower front cover and houses both a green and a red LED.



The green LED, marked “Solar”, indicates the current operational mode of the solar water heater and the red LED, marked “Attention”, indicates a fault mode.

The green LED will emit either a constant glow or a series of flashes, with a 2 second interval between flashes.

The red LED will emit a series of flashes, with a 2 second interval between flashes, only if there is a particular fault condition with the system.

The modes are:

Flashes	Operational Modes
solid green (remains on)	Standby mode
1 x green	Flooding solar circuit
2 x green	Checking solar contribution
3 x green	Pump flow control
4 x green	Pump flow established
5 x green	Tank at maximum temperature
no green (remains off)	Call for service

Flashes	Fault Modes
1 x red	Hot sensor in collector – open circuit
2 x red	Hot sensor in collector – short circuit
3 x red	Cold sensor – open or short circuit
4 x red	Top three tank thermistors – open or short circuit
5 x red	Sensor strip plugged into incorrect port on printed circuit board (PCB)

COMMISSIONING

Notes:

- ⚠ **Warning:** The removal of the lower front cover will expose 240 V wiring. Switch off the electrical supply at the isolating switch to the water heater before removing the lower front cover and if necessary disconnecting the ribbon cable from the solar control module. The lower front cover and the ribbon cable must only be removed by an authorised or qualified person.
- The ribbon cable connecting the solar monitor to the solar control module has sufficient length to enable the removal of the lower front cover and for it to be set to one side of the opening, without disconnecting the ribbon cable from the solar control module.
- The ribbon cable can be disconnected from the solar control module if it is necessary to remove the lower front cover completely from the work area in front of the solar storage tank.
- If the ribbon cable from the solar monitor has been disconnected, reconnect it to the solar control module prior to replacing the lower front cover.

  Care should be taken when reconnecting the ribbon cable to the solar control module to ensure the side of the connecting plug with the yellow label is **facing toward** the front cover opening. The connecting plug is non polarised and if it is connected with the side of the connecting plug with the yellow label facing away from the front cover opening, the functions of the green and red LEDs will be reversed. This will result in the red LED flashing instead of the green LED at solar pump start up.

TO TURN OFF THE WATER HEATER

If it is necessary to turn off the water heater on completion of the installation, such as on a building site or where the premises is vacant, then:

- Switch off the electrical supply at the isolating switch to the water heater.
- Close the cold water isolation valve at the inlet to the water heater.

DRAINING THE WATER HEATER

Solar Storage Tank
To drain the solar storage tank:

- Turn off the water heater (refer to “To Turn Off The Water Heater” on page 73).
- Close all hot water taps.
- Operate the relief valve release lever - do not let the lever snap back or you will damage the valve seat.

  Operating the lever will release the pressure in the water heater.
- Undo the union at the cold water inlet to the solar storage tank and attach a hose to the water heater side of the union.

  Let the other end of the hose go to a drain.
- Operate the relief valve again.

  This will let air into the water heater and allow the water to drain through the hose.

Heat Exchanger
To drain the heat exchanger:

- Switch off the electrical supply at the isolating switch to the water heater.
- Remove the lower front cover from the solar storage tank.

  The solar monitor located on the lower front cover is connected to the solar control module by a ribbon cable. The ribbon cable has sufficient length to enable the removal of the lower front cover and for it to be set to one side of the opening without disconnecting the ribbon cable from the solar control module.

  The ribbon cable can be disconnected from the solar control module if it is necessary to remove the lower front cover completely from the work area in front of the solar storage tank.

  At the completion of this procedure, if the ribbon cable from the solar monitor has been disconnected, reconnect it to the solar control module prior to replacing the lower front cover (refer to notes on page 73).
- Attach a 12 mm (½”) diameter clear hose to the heat exchanger drain valve hose tail connection (refer to step 5 of “Attach Closed Circuit Fluid Level Hose” on page 59).

DRAINING THE WATER HEATER

- Disconnect the drain line from the solar circuit relief valve at the top of the solar storage tank. Remove the spring clip from the solar circuit relief valve and remove the valve.

  ⚠ **Warning:** The solar circuit may be under pressure. Take care when removing the solar circuit relief valve, as a sudden discharge of pressurised hot vapour may be experienced. This discharge will create a sharp sound of vapour being released.

- Open the heat exchanger drain valve and remove the plug from the end of the hose.

  The closed circuit fluid will flood the hose.

- Place the end of the hose into a container and drain the closed circuit fluid from the heat exchanger.

  Note: The heat exchanger can contain up to 16 litres of closed circuit fluid. A suitably sized container should be used to accommodate this amount of fluid.

  The closed circuit fluid contains food grade additives (rust inhibitor, anti-freeze agent, colour) and is harmless to the environment. However, it is good practice to recover any excess closed circuit fluid and remove from site for appropriate disposal.

WATER SUPPLIES

Your water heater is manufactured to suit the water conditions of most Australian metropolitan supplies. However, there are some known water supplies which can have detrimental effects on the water heater and its operation and/or life expectancy. If you are unsure of your water quality, you can obtain information from your local water supply authority. The water heater should only be connected to a potable water supply.

ANODE

In areas where the total dissolved solids (TDS) exceeds 600 mg/L it is possible the black anode, which is the standard anode fitted to the water heater, may be excessively active. To alleviate this, the black anode should be replaced with one colour coded blue. Where the TDS of the water is less than 40 mg/L, such as when the water has been deionised or is from an alpine supply, a high potential anode, colour coded green, should be used. The changing of anodes must be carried out by a plumber or authorised service person.

CAUTION

If your water supply has a TDS greater than 600 mg/L and the anode has not been changed to a blue one, there is the possibility hydrogen gas could accumulate in the top of the water heater during long periods of no use. In areas where this is likely to occur, the installer should instruct the householder on how to dissipate the gas safely.

If, under these conditions, the water heater has not been used for two or more weeks the following procedure should be carried out before using any electrical appliances (automatic washing machines and dishwashers) which are connected to the hot water supply.

The hydrogen, which is highly flammable, should be vented safely by opening a hot tap and allowing the water to flow. There should be no smoking or naked flame near the tap whilst it is turned on. Any hydrogen gas will be dissipated. This is indicated by an unusual spurting of the water from the tap. Once the water runs freely again, any hydrogen in the system will have been released.

WATER SUPPLIES

SATURATION INDEX

The saturation index is used as a measure of the water's corrosive or scaling properties. In a corrosive water supply, the water can attack copper parts and cause them to fail. Where the saturation index is less than –1.0, the water is corrosive and a corrosion resistant heating unit should be used.

In a scaling water supply calcium carbonate is deposited out of the water onto any hot metallic surface. Where the saturation index exceeds +0.40, the water is scaling and an expansion control valve* must be fitted on the cold water line after the non-return valve. Where the saturation index exceeds +0.80, a low watts density heating unit should be used.

* Refer to the cold water connection detail on page 36.

WATER HEATERS NOT INSTALLED IN ACCORDANCE WITH THE ABOVE ADVICE WILL NOT BE COVERED BY THE WARRANTY.

RHEEM SOLAR WATER HEATER WARRANTY – AUSTRALIA ONLY

Rheem reserves the right to transfer fully functional components from the defective water heater to the replacement water heater if required. The term "water heater" used in the Warranty, Warranty Conditions and Warranty Exclusions means the Rheem supplied water heater(s), solar storage tank(s), solar collector(s), kit(s) and components.

In addition to this warranty, the Trade Practices Act 1974 and similar laws in each state and territory provide the owner under certain circumstances with certain minimum statutory rights in relation to your Rheem water heater. This warranty must be read subject to that legislation and nothing in this warranty has the effect of excluding, restricting or modifying those rights.

WARRANTY CONDITIONS

1. This warranty is applicable only to water heaters manufactured from 1st September 2006.
2. The water heater must be installed in accordance with the Rheem water heater installation instructions, supplied with the water heater, and in accordance with all relevant statutory and local requirements of the State in which the water heater is installed.
3. Where a failed component or water heater is replaced under warranty, the balance of the original warranty period will remain effective. The replaced part or water heater does not carry a new warranty.
4. Where the water heater is installed outside the boundaries of a metropolitan area as defined by Rheem or further than 25 km from a regional Rheem branch office, or an Accredited Service Agent, the cost of transport, insurance and travelling costs between the nearest Rheem Accredited Service Agent's premises and the installed site shall be the owner's responsibility.
5. Where the water heater is installed in a position that does not allow safe, ready access, the cost of accessing the site safely, including the cost of additional materials handling and / or safety equipment, shall be the owner's responsibility.
6. The warranty only applies to the water heater and original or genuine (company) component replacement parts and therefore does not cover any plumbing or electrical parts supplied by the installer and not an integral part of the water heater, e.g. pressure limiting valve; isolation valves; non-return valves; electrical switches; pumps or fuse.
7. The water heater must be sized to supply the hot water demand in accordance with the guidelines in the Rheem water heater literature.

RHEEM AUSTRALIA PTY LTD
A.B.N. 21 098 823 511
www.rheem.com.au

FOR SERVICE TELEPHONE
131 031 AUSTRALIA
0800 657 335 NEW ZEALAND
or refer local Yellow Pages

WARRANTY EXCLUSIONS

1. REPAIR AND REPLACEMENT WORK WILL BE CARRIED OUT AS SET OUT IN THE RHEEM WATER HEATER WARRANTY, HOWEVER THE FOLLOWING EXCLUSIONS MAY CAUSE THE WATER HEATER WARRANTY TO BECOME VOID AND MAY INCUR A SERVICE CHARGE AND / OR COST OF PARTS.

a) Accidental damage to the water heater or any component, including: Acts of God; failure due to misuse; incorrect installation; attempts to repair the water heater other than by a Rheem Accredited Service Agent or the Rheem Service Department.

b) Where it is found there is nothing wrong with the water heater; where the complaint is related to excessive discharge from the temperature and / or pressure relief valve due to high water pressure; where the complaint is related to insufficient or incorrect fall in the pipe work preventing complete drain back of the closed circuit fluid of a Premier Loline system; where there is no flow of hot water due to faulty plumbing; where water leaks are related to plumbing and not the water heater or water heater components; where there is a failure of gas, electricity or water supplies; where the supply of gas, electricity or water does not comply with relevant codes or acts.

c) Where the water heater or water heater component has failed directly or indirectly as a result of: excessive water pressure; excessive temperature and / or thermal input; blocked overflow / vent drain; corrosive atmosphere; non Rheem approved or incorrectly mixed closed circuit fluid being used; incorrect or insufficient filling of the closed circuit system with the closed circuit fluid; ice formation in the pipe work to or from the water heater.

d) Where the solar water heater or solar water heater component has failed directly or indirectly as a result of ice formation in the water ways of: a solar water heater system where the system has not been installed in accordance with the water heater installation instructions; a Hiline; a Loline with a freeze protection system where the electricity supply has been switched off or has failed; a Loline installed at an altitude more than 400 metres above sea level; a Premier Hiline or Premier Loline due to non Rheem approved or incorrectly mixed closed circuit fluid being used; a Premier Loline where there is insufficient or incorrect fall in the pipe work preventing complete drain back of the closed circuit fluid.

e) Where the electronic instantaneous gas booster water heater or electronic instantaneous gas booster water heater component has failed directly or indirectly as a result of ice formation in the water ways of a water heater: where the electricity has been switched off or has failed and the water heater has not been drained in accordance with the instructions; due to an ambient temperature below -20°C (including wind chill factor); where the water heater has not been installed in accordance with the water heater installation instructions.

f) Where the water heater is located in a position that does not comply with the Rheem water heater installation instructions or relevant statutory requirements, causing the need for major dismantling or removal of cupboards, doors or walls, or use of special equipment to bring the water heater to floor or ground level or to a serviceable position.

g) Repair and / or replacement of the water heater due to scale formation in the waterways or the effects of either corrosive water or water with a high chloride or low pH level when the water heater has been connected to a scaling or corrosive water supply or a water supply with a high chloride or low pH level as outlined in the Owner's Guide and Installation Instructions booklet.

h) Breakage of collector glass for any reason including hail damage. (We suggest that the collector glass be covered by your home insurance policy).

2. SUBJECT TO ANY STATUTORY PROVISIONS TO THE CONTRARY, THIS WARRANTY EXCLUDES ANY AND ALL CLAIMS FOR DAMAGE TO FURNITURE, CARPETS, WALLS, FOUNDATIONS OR ANY OTHER CONSEQUENTIAL LOSS EITHER DIRECTLY OR INDIRECTLY DUE TO LEAKAGE FROM THE WATER HEATER, OR DUE TO LEAKAGE FROM FITTINGS AND / OR PIPE WORK OF METAL, PLASTIC OR OTHER MATERIALS CAUSED BY WATER TEMPERATURE, WORKMANSHIP OR OTHER MODES OF FAILURE.

WARRANTY

Rheem* will:

a) Repair or, if necessary replace any Rheem water heater; or
b) Replace any component (or, if necessary, arrange the installation of a new water heater),
which falls within the Warranty Periods specified below, subject to the warranty conditions and exclusions.

Installation	Model	Period	Warranty
All Components (from date of installation)			
All installations	All models	Year 1	New component, solar collector or water heater (at Rheem's sole discretion), free of charge, including labour.**
Cylinder (from date of installation)			
Water heater installed in a "single-family domestic dwelling"	Loline Premier Loline Hiline	Years 2 & 3	New water heater, free of charge, including labour.**
		Years 4 & 5	New water heater, free of charge, with installation and labour costs being the responsibility of the owner.
	Premier Hiline	Years 2 to 6	New water heater, free of charge, with installation and labour costs being the responsibility of the owner.
Water heater installed in any other than a "single-family domestic dwelling"	Loline Premier Loline Hiline Premier Hiline	Years 2 & 3	New water heater, free of charge, with installation and labour costs being the responsibility of the owner.
Heat Exchanger Electronic Instantaneous Gas Booster (from date on installation)			
Water heater installed in a "single-family domestic dwelling"	Premier Loline	Years 2 & 3	New heat exchanger, free of charge, including labour.**
		Years 4 & 5	New heat exchanger, free of charge, with installation and labour costs being the responsibility of the owner.
Solar Collector (from date of installation)			
Water heater installed in a "single-family domestic dwelling"	NPT200 S200 T200	Years 2 to 5	New solar collector, free of charge, with installation and labour costs being the responsibility of the owner.

Notes:

* Rheem is the supplier of Rheem electronic instantaneous gas water heaters, manufactured by Paloma Industries, a world leader in water heater technology and manufacture.

** Refer to items 4 and 5 of warranty conditions.

Note: Every care has been taken to ensure accuracy in preparation of this publication. No liability can be accepted for any consequences, which may arise as a result of its application.

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